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The Bolingbroke Lecture

ENTITLED,

AN EXERCISE ON HEART DISEASE.

Delivered before the South-West London Medical Society on June 8th, 1910,

BY NORMAN MOORE, M.D. CANTAB., F.R.C.P. LOND.,

PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—"The heart of animals," says Harvey in his dedication, "is the foundation of life, the chief part of all, the sun of the Microcosm, whence all movement is derived, whence all force and strength are diffused." He wrote in 1628 and clearly understood the importance of the heart to the life of a man, yet a knowledge of diseases of the heart has only come to be a part of the general attainments of our profession for less than a century.

HISTORICAL SUMMARY.

Of the Four Hundred and Twelve Aphorisms of Hippocrates, short statements of striking facts in symptomatology, prognosis, and treatment, only one alludes to the heart. It is the eighteenth in the Sixth Book, and says no more than that wounds of the bladder, brain, heart, diaphragm, small intestine, stomach, or liver are fatal. There is a treatise on the heart, περὶ καρδίης, among the Hippocratic writings which notices that it is a muscle and a few other points in its anatomy, but if all the passages of Hippocrates which mention the heart are examined the reader is easily satisfied that they contain very little information. Ancient Greek medicine, so like modern medicine in its method of clinical observation, had attained no knowledge of diseases of the heart. Galen, and the Arabian physicians who carried on his observations and hypotheses into the Middle Ages, noticed the characters of the pulse and meditated upon them, but knew nothing of diseases of the heart. Even after Harvey had demonstrated the circulation of the blood, ignorance still prevailed in this part of medicine. The elaborate commentaries of Van Swieten on the Aphorisms of Boerhaave contain all that was known in medicine in the middle of the eighteenth century. This, as regards the heart, was no more than a very imperfect acquaintance with pericarditis, with rupture of the heart, with hypertrophy and dilatation. There were some isolated observations like that of James Douglas, who, in 1715, certainly heard a systolic murmur due to aortic valvular disease which he actually saw after the patient's death, but it was the introduction of minute examination of the chest by Laennec which led to the diffusion of clinical knowledge of heart disease. That knowledge has now become part of the attainments of every practitioner. Great additions have been made in recent years, among which one admirable piece of work deserves special mention: the large collection of original observations, of conclusions drawn from them, and of judicious reflections upon symptoms and treatment contained in Dr. James Mackenzie's "Diseases of the Heart," published in 1908. Much yet remains to be learned, and I have therefore ventured to address you this evening on a variety of cases which I have lately had under my care, of a kind of which you must all have seen many in practice and of which a never-ending series appears in the medical wards of every hospital.

A remark of Horace in the "Ars Poetica," in which he contrasts those poems which give a transient gratification with those which are read again and again with fresh enjoyment: "Haec placuit semel, haec decies repetita placebit," was often misused by the mediæval medical writers, who said "Decies repetita placebit" to justify reiteration of the dicta of their predecessors, but it may fairly be applied to the repeated consideration of cases of disease, for such is their variety that to repeat observations ten times is never a vain repetition. If I describe what may not be entirely new to you I hope it may yet be interesting.

SIGNIFICANCE OF NORMAL HEART SOUNDS IN DIAGNOSIS.

I may begin with an example of the significance, in relation to differential diagnosis, of the presence of normal heart sounds.

A poor girl, aged 14½ years, was admitted to one of my wards at St. Bartholomew's Hospital a few weeks ago, who was said to be suffering from rheumatic fever. She seemed in great pain and fearful of being touched, and her temperature was 103° F. Before looking at her joints I listened to her heart and found that its sounds were normal. When her legs were uncovered it was obvious that her left thigh as well as the knee-joint was swollen, and very slight pressure on the middle of the shaft was painful. I concluded that she had acute necrosis and not rheumatic fever. As soon as possible an operation was performed, pus was let out, and bone, stripped of periosteum discovered. I mention the case because I want to lay stress on the statement that any case of rheumatic fever with severe joint pain and a temperature of 103°, that is, any well-marked case, will always have a cardiac murmur—in other words, will always yield definite evidence of the presence of endocarditis.

I have known other cases of acute necrosis admitted to medical wards as rheumatic fever as a result of an examination the thoroughness of which was abated by a humane desire to cause as little pain as possible, so that it may be worth while to mention, what your experience will, I am sure, confirm, that in a case of rheumatic fever, if you distract the attention of the often nervous child, no sign of pain will be elicited by pressure in the middle of the shaft of a long bone. In acute necrosis the pain is, of course, intense in that situation. If the pain in the joints be severe and the temperature high, an endocardial murmur will always be present if the patient has rheumatic fever, but if the case exhibit high temperature without joint pain, or with only slight joint pain, and be one of ulcerative endocarditis it may be some days before a distinct murmur is heard. In such cases a barely noticeable obscurity of the heart sounds may be present, so slight that, till the symptoms develop, one is apt to doubt whether it is of importance.

In every case of rheumatic pericarditis an endocardial murmur will sooner or later be heard. If, therefore, pericarditis long persists without any murmur being heard some other cause than rheumatic fever must be looked for.

A boy, aged 15 years, was admitted under my care at St. Bartholomew's Hospital. A well-marked friction sound was audible over his cardiac area from the left base to the apex of the heart. A year before he had had a sudden attack of pain over the heart which lasted three days. Two months back he had severe pain over the heart. A week before admission he fainted while at work, had pain over the heart, and some dyspnœa. There was no history of joint pains. His temperature for ten days after admission was from 100° to 103° F., and after that had occasional rises to 99° or 99·5°, a chart somewhat higher for the first ten days but otherwise not unlike that often observed in rheumatic fever. He had signs of pleurisy over the lowest part of the left lung behind and a complexion somewhat dusky. Dulness on the left front extended just beyond the left border of the sternum and up to the clavicle, and no breathing sounds were to be heard between the cardiac region and the clavicle. A loud friction going with the movements of the heart was to be heard, but no friction synchronous with respiration. A skiagram appeared to represent a pericardial effusion extending to the left clavicle and one inch beyond the right edge of the sternum. His dyspnœa increased, and with a view of relieving it I had a needle inserted where there was dulness at the base of the left lung behind. No fluid came out but some air was let in, for the next day there was Skodaic resonance below the left clavicle, though no breathing sounds were to be heard over the resonance. This seemed to demonstrate that the previous dulness up to the clavicle was due entirely to pericardial effusion, and that the upper part at least of the left pleural sac contained no fluid and was free from adhesions. The Skodaic resonance was gradually replaced by dulness, such as had existed before the admission of air into the pleural sac. The pericardial friction sound grew less and less distinct and finally ceased, but no murmur could at any time be heard. A well-marked tuberculin reaction was obtained. Some faint breathing with a diminution of dulness became slowly perceptible at the left apex. The boy gained weight and the pleural dulness behind diminished.

This was a case of a tuberculous pericarditis, accompanied by a small area of tuberculous pleurisy. It is true that tuberculous pericarditis, except in cases of diffuse miliary tuberculosis, is rarely seen in the post-mortem room, but

having occurred recovery from it may take place as it does from tuberculous pleurisy and tuberculous peritonitis. The entire absence in this case of signs of endocarditis was accompanied by freedom from arthritis.

Conversely, the presence of a murmur in a patient known to have had before normal heart sounds will sometimes make it clear that a supposed injury is not the cause of a pain in knee or ankle, but that the patient has rheumatic fever.

A boy whom I saw in consultation had some rise of temperature and was in bed because of pain in one ankle, attributed by him to a possible blow in the hockey field, of which, however, the patient had no recollection. His heart, known by his medical attendant to have been normal a few months before, showed a well-marked systolic murmur at the apex. There was no bruise nor even redness on the ankle. The case was one of rheumatic fever.

ADHERENT PERICARDIUM.

To decide whether the pericardium is adherent to the heart or not is a matter of great importance in relation to prognosis. A child with an adherent pericardium will very rarely live to grow up. This is most likely due to the interference with the general nutrition as well as with the muscular movement of the heart wall. The pericarditis of rheumatic fever is always accompanied by endocarditis and often in addition by well-marked valvular disease, the result of past endocarditis. Often the fact that the patient, though young, and with every advantage of nutrition and care, does not ever begin to recover from the effects of valvular disease is evidence, inconclusive perhaps, yet the best to be obtained, that he has an adherent pericardium. His temperature chart shows no great rises, the increase in size of his heart seems sufficient to compensate for his valvular lesion. He perhaps seems a little better, but directly he is allowed to get up, even for a short time each day, his heart's action becomes irregular and embarrassed and he has to return to bed again for a long period. Perhaps no physical sign of pericarditis has been observed. There is perhaps with other endocardial physical signs a presystolic apex murmur accompanied by a thrill. The natural question is asked whether the embarrassment is due to extreme mitral stenosis? The fluctuations of the murmur seem to oppose this view, and so from week to week uncertainty remains as to why the patient makes no improvement, in spite of his youth, and in spite of the fact that he has no evidence of severe continuous endocarditis. Such a case generally proves in the end to have been an example of adherent pericardium.

A boy who died at the age of 16 years in St. Bartholomew's Hospital, and who had been under my care there from Nov. 5th, 1907, to March 10th, 1908, and from Jan. 29th to Dec. 31st, 1909, was an example of this kind. He had first been in the hospital in 1906 with rheumatic fever. In 1907 he had some purpura with well-marked aortic obstruction and regurgitation and also signs of mitral obstruction and regurgitation. Nevertheless, he managed to get employed upon a van—a form of work, I may remark incidentally, easy for a boy to follow and generally injurious to his future prospects, since it can be followed by him long enough to enable him to forget his school education without giving him any skilled knowledge in its place with which to earn his living in later life. This boy was no longer able to work at the end of January, 1909, owing to shortness of breath both on exertion and on lying down in bed. He had no pain in his joints and his temperature was normal. His heart was obviously hypertrophied; the apex was in the seventh intercostal space half an inch outside the left nipple line. At the second right interspace and down the sternum very loud systolic and diastolic murmurs were audible and the systolic murmur was audible in the right supraspinous fossa. At the apex there was a very loud systolic murmur audible in the axilla and at the angle of the scapula. A thrill was to be felt at the apex only, but I did not hear any presystolic murmur there. On March 1st a fine thrill was to be felt at the second right intercostal space. The acoustic characters of the basic murmur and the apical murmur were quite distinct, and the characters of the two thrills were equally distinct. On June 21st a distinct presystolic murmur became audible at the apex, and afterwards continued to be heard there. The pulse was sudden. The liver was somewhat enlarged and slightly tender; the spleen was not felt. There were a few purpuric spots on the legs and arms. A blood count on Feb. 2nd gave 3,980,000 red blood cells and 16,200 white blood cells, and a fortnight later there were 11,600 white cells. There was a trace of albumin in the urine. He had not œdema of the legs till July, after which some was present till the beginning of October. He was obliged always to be propped up in bed all day, but lay down a little at night, and sometimes had pain over the heart. On Oct. 11th he had a sudden attack of pain when lying down and sat up with a loud cry, and had extreme dyspnœa. Later that day he became cyanosed. He was bled nine ounces, given subcutaneous injections of strychnia and inhalations of oxygen, and at 4 A.M. he fell asleep. The next day he was better and on Oct. 25th he got up a little for nine days. Then he stayed in bed owing to pain in his right shoulder, but otherwise continued fairly well and had no œdema of his legs. On Nov. 24th he had pain over the liver which three leeches relieved. He was very often quite cheerful, but getting up made him too short of breath to be attempted again. He greatly enjoyed the Christmas festivities, but the excitement was too much for him, and on Dec. 31st his dyspnœa became urgent and steadily increased till his death late in the evening.

The temperature did not suggest a progressive endocarditis. It was normal or subnormal from April 23rd to May 24th, and from June 17th to Dec. 31st. On Feb. 2nd, 4th, 20th, 21st, and 22nd, March 10th, 15th, and 30th, April 3rd, 4th, 5th, 7th, 10th, 14th, and 17th, and May 14th and 15th there were rises which only once reached 100°, and generally not more than 99°. On May 25th the temperature was 102° and next day 101°. On the remaining intervening days it was normal or subnormal. Strychnia and salicylate of soda were the chief drugs used with occasional purgatives and sedatives.

Post mortem, there were found a universally adherent pericardium except for a few patches of hæmorrhage, thickened and adherent aortic valves, and thickened and adherent mitral flaps. There was acute mural endocarditis of the left auricle and of the upper part of the septum. The myocardium was pale. The heart weighed 28 ounces, the liver 60 ounces, and the spleen 11 ounces. There were no signs of congenital syphilis. Well-marked amyloid disease was present in the kidneys, spleen, and last five feet of the mucosa of the ileum. Here is his heart, the muscular wall of which shows well-marked staining due to the presence of amyloid disease.

If amyloid degeneration be due to bacterial toxins, as has recently been maintained, and in view of the fact that it has been produced in rabbits by repeatedly injecting them with staphylococci, the amyloid disease in this case may perhaps point to such an effect from the endocardial organisms. My pathological colleague, Dr. M. H. Gordon, has pointed out to me that of 430 cases of amyloid disease observed at Edinburgh up to 1887, 20 were cases of hypertrophy with valvular disease following rheumatism and with no history of suppuration or syphilis, and he suggests an immunisation against the endocarditis and therefore the valvular disease of rheumatic fever may yet be attained.

I began by mentioning this boy as an example of the way in which the presence of something retarding recovery over a long period may lead us to the diagnosis of an adherent pericardium. The slight rise of temperature which his case shows to be compatible with progressive endocarditis is another point worthy of remark, and finally the presence of amyloid disease in relation to the prolonged endocardial and pericardial changes of rheumatic fever deserves attention.

Another boy, aged 12 years, was admitted under my care at St. Bartholomew's Hospital on Dec. 28th, 1909, with a troublesome cough and some pleurisy of the left side. He had also a well-marked friction over the cardiac area. At the apex an endocardial thrill could be felt and a presystolic and systolic murmur were audible. The systolic murmur was audible at the angle of the left scapula. On Jan. 31st his apex was in the sixth space and left nipple line. After this the impulse increased, the pleural friction disappeared *first*, and then the pericardial.

The boy is no longer acutely ill, but the least exertion deranges the action of his heart, and his nutrition, though slightly improved, progresses very slowly, much more slowly than his valvular disease alone would account for. It is certain he had pericarditis, but had I not witnessed this I

might have inferred from his retarded recovery that an adherent pericardium was present.

BULGING OF THE CHEST WALL.

However great the effusion in pericarditis there is never bulging of the chest wall. Hypertrophy of the heart produces a bulging over it in children and young people, and sometimes, though rarely, a mediastinal new growth beginning in or involving the pericardium causes a projection of the chest wall. This could never be mistaken for a pericardial effusion, yet I may mention a case in connexion with pericardial bulging, but chiefly on account of its interest in other ways.

A woman, aged 51 years, who was admitted under my care at St. Bartholomew's Hospital on Feb. 9th this year, had a remarkable projection of the sternum just below the joint of the manubrium and extending into the cardiac region. It felt firm and had no pulsation. It looked rather like an old deformity than a recent growth, but it had only appeared about Christmas, 1909. The patient had some shortness of breath. There was a systolic murmur, loudest at the apex but heard all over the front. A rounded mass was to be felt between the umbilicus and the xiphisternum. Both this mass and the projection in the chest slowly increased till April 20th, when the patient left the hospital, dying two days later. The absence of pulsation made it certain the swelling was not an aneurysm. Its true nature was made certain by the condition of the urine. It contained the albumose originally noticed by Bence Jones in a case of new growth. On heating to 60°–70° a coagulum formed of which a large part, but not the whole, was redissolved at boiling point. I asked Dr. Priestley, the chemical pathologist at St. Bartholomew's, to report upon the total examination of the urine, and his report was as follows:—

Reaction, acid; specific gravity, 1012. Total amount in 24 hours, 1230 cubic centimetres. The specimen contains albumin and typical Bence Jones albumose. The latter is precipitated on standing. It coagulates on heating to about 60°, and on heating further the coagulum mostly dissolves, but not entirely. Similar behaviour with acetic acid and potassium ferrocyanide, nitric acid, salicylsulphonic acid. Albuminimeter (Aufrecht), 0·25 per cent. protein; total nitrogen, 0·6356 per cent.; creatin (as creatinin), 0·0124 per cent.; creatinin, 0·0566 per cent.; sodium chloride, 0·2925 per cent. Precipitation limits with ammonium sulphate in untreated urine 45–55 per cent. saturation; a coagulum forms on heating the acidified urine at 60–64° C.; another at 70–72° C.; a third at 80–82° C.

The patient lost but little weight till about three weeks before she left, when some loss of flesh became apparent. The Wassermann reaction in the spinal fluid was negative. This urine reaction, of course, made it certain that the projection extending from the sternum towards and into the cardiac region was a new growth, no doubt a sarcoma.

The interest of the way in which the nature of the swelling came to be certain has caused me to dwell longer upon this case than was perhaps necessary, in relation to it as an uncertain protuberance in the cardiac region.

POSITION OF THE APEX OF THE HEART.

The determination of the position of the apex of the heart is, of course, important, but it must be borne in mind that what seems the apex beat on the chest wall is not a constant anatomical point for all hearts, and is perhaps not always constant for the same heart. Remembering this, "the apex of the heart" is a convenient expression for clinical use and an aid to the approximate determination of the size of the heart. If the apex is in the sixth space and nipple line the heart may be of double the normal weight.

In a patient who was admitted under my care at St. Bartholomew's Hospital on Nov. 30th, 1909, in a state of very urgent dyspnœa with very irregular action of the heart, I felt what seemed to be the apex beat in the ninth intercostal space and anterior axillary line. It was so far out that I felt at first some doubt whether I was actually feeling the heart. The patient had come in a cab by himself from Sydenham. He had for three years been unable to go upstairs without getting out of breath. He had been in bed since early in August on account of dyspnœa and pain in the left side. He was said to have had rheumatic fever at the age of 18 years. There was a thrill at the right base and a systolic murmur there and all over the cardiac area. He said he felt better the day after admission, but died suddenly the next day.

Post mortem the enormous heart I show you was found. There was well-marked thickening of the aortic valves. His right lung had a large hæmorrhagic infarction. The liver was greatly engorged. The kidneys were indurated and weighed 25 ounces. The heart when full of blood weighed 78 ounces, and 51 ounces when emptied of blood, a difference showing how marked may be the difference between the size, as shown by percussion, of a distended heart and of the same heart not greatly distended.

NATURE OF ENDOCARDITIS.

In the present state of bacteriological knowledge it is often difficult to determine whether the endocarditis progressing in a patient is of the kind belonging to rheumatic fever or is a true ulcerative or malignant endocarditis. The presence of streptococci in the blood will sometimes indicate a malignant form of endocarditis, but often the blood culture yields an inconclusive result. Time seems at present a necessary aid to solving the problem of the presence or absence of malignant endocarditis; but we may expect that bacteriology will soon supply us with an earlier determination of the nature of such cases. Once the suspicion of malignant endocarditis has arisen nothing but an absolutely normal temperature of several weeks can set it aside.

A boy, aged 8 years, now in my wards, was admitted on Nov. 23rd, 1909, with valvular disease. He had a well-marked thrill at the apex and a presystolic murmur and a systolic murmur were audible there. The systolic murmur was plain at the angle of the left scapula. On Jan. 21st, 1910, I for the first time perceived a thrill at his second right intercostal space, accompanied by a systolic murmur and a diastolic murmur. These physical signs have remained unchanged. He has double mitral disease and double aortic disease. He at first looked very ill, then rather better, then very ill again, now pretty well. The first nine weeks he had in each week some rise of temperature, never up to 101° F., rarely to 100°, then came a week of normal temperature, then a rise at the end of the next week to 99°, then three days at 101·5°, then a normal week, then a week at 99°, and then occasional rises to 99°, with seven normal weeks, of which three came together. His temperature is now slightly raised. He has had no joint pains. I fear that he has a malignant endocarditis which will ultimately cause his death.

A girl, aged 8 years, was admitted under my care on April 18th, 1910. She had some pain and swelling of her left knee and ankle. Her heart acted irregularly and she had a presystolic murmur and a systolic murmur at the apex, the latter audible at the angle of the scapula. On April 25th she had signs of consolidation in the lower part of the right lung, due, I thought, to an infarct. Her temperature for a week had been 102° to 103° F. It fell to a daily maximum of 101° for three days, and then she died suddenly at 9.50 A.M. on April 27th. There was no post-mortem examination but she may be assumed to have had a malignant endocarditis. In that disease a prolonged high temperature is common, but a somewhat less temperature, or even a temperature barely above normal, is not to be taken as a proof of improvement.

The suddenness with which the true nature of these cases comes out is often startling.

A boy, aged 8 years, was admitted to one of my wards with well-marked aortic obstruction and regurgitation. I remarked to my clinical clerks that his valvular lesion was like that of a man past middle life and gave him little trouble, as such a lesion often does while the nutrition of the heart is maintained to an adult. There was a history that he had had a transient hemiplegia. No sign of it was present. It is uncommon in children who have well-developed aortic disease for the mitral valve to be absolutely healthy, and I was not, therefore, surprised that when he had had prolonged rest a second systolic murmur could be heard certainly due to mitral regurgitation. The boy every week had some slight rise of temperature, on two days reaching 100·5° F., and on three 100°, for the rest not more than 99·2° or 99°. His spleen was not to be felt. On admission he had some renal engorgement and his urine in 24 hours was only 3½ ounces, and he had some signs of cerebral irritation which passed off in a week. On Feb. 16th he could not use his right hand perfectly, but he was a left-handed boy. In a few days his condition became normal, allowing for his valvular lesion and his occasional slight rise of temperature.

On May 31st he suddenly had a fit, showed signs of right hemiplegia, became unconscious, and died in a few hours.

Post mortem well-marked aortic disease was discovered, with an infective spot below one aortic cusp. One group of cords of his mitral valve were thickened. His heart weighed 11 ounces. His myocardium seemed normal. In his brain in the left posterior parietal region was a large blood-stained cavity. In the frontal lobe on the same side there was a large hæmorrhage—a mass of clot as big as a Tangerine orange. The vessels at the base were normal. He died from the results of an infective endocarditis.

CHOREA AND RHEUMATISM.

My own belief, based on the observation of a large number of cases, is that endocarditis is an essential part of rheumatic fever, and I think it would be useful to regard every case of chorea as belonging to the same species of disease as rheumatic fever. It is well worth while to watch cases of chorea over long periods, taking the temperature constantly and listening to the heart often.

A girl, aged 12 years, was admitted to my ward on Nov. 23rd, 1909, with violent choreic movements, so that she had to be placed in a bed with raised sides. She had had chorea in 1904 and in 1906. She was of French descent and seemed of an emotional nature. She flung herself about in bed, rolling her eyes and shooting out her tongue when asked to show it. The muscles of her mouth were in constant play; in short, she was a severe case of chorea. Her heart showed a thrill at the apex and a presystolic and systolic murmur. She had double mitral disease. The apex beat was outside the nipple line in the fifth space. She had some rheumatic nodules about the shoulder blades. In March more nodules appeared. She was wasted on admission but gradually became better nourished. Her movements grew less. Her temperature was generally normal, but in some weeks a single rise to 99° F. took place. From April 13th to 29th her temperature rose every day, and on two days to 101·5°. On May 3rd it was clear that she had some obstruction of the pulmonary valves. At the second left intercostal space a finger's-breadth from the sternum a fine thrill was to be felt and a fresh systolic murmur, which seemed close to the end of the stethoscope, was to be heard there; this has persisted. This was a well-marked example of continuous endocarditis in chorea. It can generally be detected, and is, I believe, a part of every case of rheumatic chorea, which may, in fact, be regarded as merely a phase of rheumatic fever.

VALVULAR DISEASE: PROGNOSIS.

Though death in valvular disease is often said to occur either suddenly, of which the type is the falling down dead from aortic regurgitation, or gradually with dropsy, as in many of the cases of mitral disease which are to be seen in hospitals—there are in reality many variations in the way in which the fatal termination is reached. I am not thinking of their physiological explanation, but only of their clinical appearance. It is worth considering them, since we may thus learn something from them of the direction which treatment ought to take, and may be able to form an accurate prognosis.

Well-established disease of the aortic valves, whether associated with angina pectoris or not, is rightly regarded as the commonest of all causes of immediate death in patients apparently well; yet the more cases are examined the more clear does it become that a patient with well-marked aortic valvular disease may, by avoiding sudden strain upon his heart, whether physical or mental, live beyond fourscore. The avoidance of physical strain is easily followed: no hastening for trains, no riding of unruly horses, no lifting of weights, no taking down of heavy books from upper shelves. These are injunctions which a little practice makes part of the rule of life. To old men and women the avoidance of emotion is less difficult than to younger people, and in many of them an absence of excitement is the normal state. Being warned they thus easily keep out of the effects of joy, of grief, and of the competition of life. The same degree of disease of the aortic valves in the young, of course, renders them unfit for physically laborious lives, but often interferes surprisingly little with an even tenor of industry. Aortic valvular disease pure and simple is rarely found after rheumatic fever, and most of the young in whom after rheumatic fever the aortic valves are affected have also some mitral regurgitation. My experience is that this does not make the prognosis worse.

The differences between the aortic vavular disease of the old and the young are that in the old the myocardium is often affected, while in the young it may be perfectly healthy. The valvular condition in the old may change slowly or may be long stationary, while in the young further endocarditis may aggravate it and render the condition of the valves absolutely incompatible with long life.

A familiar example of this aggravation of the valvular difficulty is to be seen in the numerous patients who conclude their first attack, as it is called, of rheumatic fever with a permanent condition, mitral regurgitation, leading to hypertrophy of the left ventricle. Subsequent endocarditis in further rheumatic fever leads to adhesion of the mitral cusps and well-marked signs of mitral stenosis, which becomes the effective and distressing valvular lesion. Mitral stenosis alone is never accompanied by hypertrophy of the left ventricle, so that every case in which that hypertrophy is present, accompanied by a presystolic murmur and an apical thrill, is one of valvular disease aggravated by further endocarditis.

Of all the forms of valvular disease mitral obstruction is that for which the heart itself seems able to do least and in which medical treatment is least satisfactory. I am inclined from my own experience to the opinion that such cases might live longer and have less distress if they were bled periodically, and the engorgement of viscera thus constantly postponed. Our ancestors imagined they kept their health by periodic bleeding—a proof, at least, that it did not do them serious harm. When they were bled for cerebral hæmorrhage it did them no good. When they were bled for acute pneumonia the disease was rendered more often fatal or the convalescence was elongated, but I have not discovered any evidence to show that the bleeding of healthy men and women to which the theories of the eighteenth century and earlier periods led did any permanent harm. Such bleeding might do permanent good in the course of cases of mitral obstruction, as it certainly does in the extremity of such cases. Such patients are often greatly relieved by the alteration in the circulation due to pregnancy.

It is remarkable in mitral obstruction how once a certain degree of hepatic obstruction is reached neither rest nor bleeding nor drugs can long prevent the increase of visceral engorgement and of dropsy. Such patients often die in a moment as they lie propped up in bed, but in mitral obstruction sudden death sometimes takes place in patients who are walking about apparently well. Not long ago I saw a parlour-maid, aged 28 years, fall while she was waiting at table. I felt her pulse at once. It had stopped and she was dead. The death was exactly like that of a case of aortic valvular disease, but post mortem well-marked mitral stenosis was the only lesion present. The liver, spleen, and kidneys were engorged, but there was no dropsy. A certain number of such cases have been recorded, but they are rare.

Mitral regurgitation is the commonest form of valvular disease in the young. What ought to be said about its prognosis? I think this: That such complete compensation may take place that it need not interrupt even an active career in life. The most important point in treatment is to avoid further endocarditis and consequent further valvular injury. Unlimited rest and prolonged watchful protection against heart strain are to be insisted on. Any large experience in affections of the heart will, I think, lead to the conclusion that the cause of death in the majority of patients is not merely the condition of the valves and the endocardium, nor of the myocardium, but of the whole heart and the whole circulation.

CONCLUSION.

I hope that my observations have not been on subjects too well known to you to be interesting. Perhaps you may forgive me, as a physician to St. Bartholomew's Hospital, for liking to address you on the subject of the heart, for it was a physician to St. Bartholomew's, Dr. David Pitcairn, who first taught that the heart was affected in rheumatic fever. He was born in 1749, elected physician in 1780, and died in 1809. He is buried within St. Bartholomew's Hospital, and a fine portrait of him by Hoppner hangs in the Censors' Room at the Royal College of Physicians of London.

It was in the wards of St. Bartholomew's that a valvular

murmur was first heard, and it was in its post-mortem room that the condition of heart was discovered to which the murmur heard was due. The observer was Dr. James Douglas, a man of constant observation and great learning. He was the first to describe an amyloid spleen. The precise elucidation of these conditions did not come till long after his time, yet to have so nearly approached two great discoveries is a proof of the acuteness of his observation. His name is commemorated in the modern designation of parts of the peritoneum, which, as well as its general arrangement, he was the first to describe. He died in 1742.

The earliest writer on the heart at St. Bartholomew's was the greatest of all, and whatever is now known about this subject rests upon Harvey's discovery. Harvey was elected physician to St. Bartholomew's Hospital on Oct. 14th, 1609, and every subsequent physician to that ancient foundation may, I hope, be allowed to feel that he is

"Proud to be less, but of his god-like race."

ABSTRACT OF

The Morison Lectures

ON

EPILEPSY.

Delivered before the Royal College of Physicians of Edinburgh on Feb. 28th and March 2nd and 4th, 1910,

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LECTURE III.[1]

Delivered on March 4th.

TREATMENT OF EPILEPSY.

GENTLEMEN,—Since the introduction of the bromides by Sir Charles Locock[2] in 1857 most epileptics at some period in the course of their malady have probably been treated by these drugs. The universal prescribing of the bromides during the past half century, with more or less success in subduing the convulsions, has to a large extent deprived the patient of the advantages which may be obtained from the hygienic, dietetic, and disciplinary lines of treatment.

As the physical and mental development of epileptics varies as much as in conditions of health, it is obvious that lines of treatment suitable for the physically robust and mentally capable may be detrimental to the physically frail, and impossible in the dementia of the confirmed disease. We have, therefore, in every case of epilepsy to treat the individual and not solely the disease.

1. It is well known that epilepsy may undergo spontaneous cure even after the convulsions have lasted for a number of years.

2. There is a considerable percentage of epileptics in whom the disease is characterised by the infrequent occurrence of fits, and the absence of any obvious mental impairment. Those constitute a favourable type of epilepsy and may be treated medicinally and dietetically on the lines which will presently be laid down.

3. In a large number of cases the disease would seem to be excited in predisposed persons by reflex irritation of the peripheral organs. I would especially call attention to the value of a careful examination of (*a*) the nose for foreign bodies or adenoid growths in children, and nasal polypi in adults; and (*b*) of the eyes for errors of refraction (which are particularly frequent in epileptics) and their correction by suitable glasses. (*c*) Caries of the teeth requires the necessary attention, as I have frequently observed great improvement in the fits after the adjustment of suitable artificial means of mastication. (*d*) All disorders of the stomach and intestines—dyspepsia, constipation, and worms—should be carefully attended to; epileptics, being notoriously big eaters, require great care in the regulation of their meals and should be encouraged to fully masticate their food. (*e*) Local disease of the pelvic organs in women requires attention, but too much stress ought not to be placed upon those disorders even in predisposed persons, although their treatment by suitable remedies should be carried out.

4. There are many cases of epilepsy in the early stages of which treatment in an institution may be either impossible or inadvisable. Under those circumstances the patient ought to be placed under the care of a capable and properly trained nurse attendant. The satisfactory carrying out of that instruction will often eventuate in most gratifying results.

5. Epileptics suffer notoriously from lowered vitality and sluggish circulation in the extremities. For those warm baths, spinal douches, and massage are desirable. Use of the hot bath is most necessary, not only for the ordinary ablutionary purposes, but to promote skin excretion, which is regarded by some writers as being of a toxic nature. Under all circumstances a certain amount of daily exercise in the open air is necessary—walking, running, tennis, croquet, and football may all be indulged in freely. It is scarcely necessary to point out that such exercises as bicycling, rowing, swimming, and riding are to be avoided.

6. An out-of-door life is usually regarded as the most suitable for an epileptic, but this entirely depends upon the physical vigour of the patient; hence farming or market-gardening should only be recommended to those of a robust constitution, while for the frail epileptic drawing, modelling, book-keeping, and such semi-sedentary forms of work are quite suitable. On the other hand, there are many who are able to continue their professional work or business without difficulty and with advantage to themselves and their disease.

7. I do not think it right that those subject to even infrequent epileptic seizures should be sent to school along with normally healthy boys and girls. It is neither fair to the epileptic nor agreeable to his or her companions. In all cases private education is to be recommended. In cases with marked mental impairment special methods of teaching ought to be adopted.

8. If the disease develops during a period of mental strain preceding an examination complete abstinence from work should be temporarily enforced, but when the type of the disease has revealed itself education should be resumed on the lines already laid down.

9. The marriage of epileptics should be discouraged. There is a popular belief that if an epileptic girl is married the disease will thereby be cured. I have met with isolated instances of this, but in the majority of cases pregnancy and the puerperium are especially prone to increase fits, or at the best to exert no change at all upon them.

The treatment of epilepsy should be considered according as the disease is of recent development or of old standing.

A. RECENT EPILEPSY.

There is no single specific remedy in the treatment of epilepsy, although the alkaline salts of bromine come nearest to this definition. But the influence of the bromides upon epileptic convulsions is variable and uncertain.

The Bromides.

In the first place, *bromide medication may arrest the seizures immediately*, or within a short period of their administration, temporarily or permanently. In this division most of the curable types of epilepsy are found, cases characterised by an absence of mental impairment and with fits recurring only at long intervals. If any given case is capable of arrest a satisfactory response will be apparent within a comparatively short period of commencement of the bromide treatment.

Secondly, the bromides may induce a *lessening in the severity and frequency of the seizures*. This is the common temporary result of bromide treatment and is what may be confidently expected in the majority of cases in the early stages of the disease. Sometimes the change is effected by the arrest of the major seizures, the minor continuing; or the bromide may change the time incidence of fits, from the waking to the sleeping hours, or *vice versâ*.

Thirdly, the bromides *may exert no influence at all upon the disease*, or may even augment the frequency or severity of the seizures.

These facts may be given in the form of a table showing the general results of treatment by the bromide salts in 366 cases of epilepsy.

Cases of arrest	86	or 23·5	per cent.
Cases showing improvement ...	105	,, 28·7	,,
Confirmed cases	175	,, 47·8	,,
Totals	366	,, 100·0	,,

[1] Lectures I. and II. were published in THE LANCET of July 16th, 1910, p. 147.

[2] Locock: Medico-Chirurgical Transactions, 1857.

These figures are in general harmony with the observations of other writers on the subject; they demonstrate clearly how large a percentage of epileptics derive no benefit from bromide treatment. This is within the knowledge and personal experience of most physicians who have had to treat even small numbers of epileptic patients.

A further conclusion drawn from the study of these figures is that under the influence of the salts of bromine a considerable number of cases of epilepsy are temporarily "cured" or materially improved. Notwithstanding the unfavourable results of treatment in many cases it would be an error to say that bromides are useless in the treatment of epilepsy. If 50 per cent. of the cases derive benefit from the administration of these drugs, then all cases, especially of recent onset, should be given the benefit of the drug for a time.

Dosage.—Bromide treatment should be commenced at the earliest possible time after the onset of the fits, as there is a greater prospect of arrest or improvement during the first five than during the second five years of the disease, although arrest of the seizures may occur after a duration of 20 years. The administration of the bromides should be continued for a period, the duration of which is to be determined by the study of each case separately, but should not be less than two years.

The dose usually given is, I think, too large. If benefit does not follow a daily dose of from 45 to 75 grains of one or a combination of the bromide salts, some other remedy or method of treatment should be sought for and applied. The large doses sometimes prescribed—from 100 to 150 grains daily—although no doubt suppressing the seizures for a time, induce other and more serious phenomena—viz., those of bromism. Moreover, the bromides have an accumulative action. Laudenheimer[3] has shown that an epileptic taking 10 grammes (150 grains) of bromide salt daily for eight days only excreted 35 grammes during that period. He also showed that no results followed its administration until an equilibrium was established between the intake and the output. This occurs on saturation of the body and requires about 30 grains of bromide to be given daily for three or four weeks. It is also largely dependent upon the amount of sodium chloride taken in food.

Methods of administration of the bromides.—Most physicians have their own methods of prescribing the bromides in epilepsy. As already mentioned, large doses are neither necessary nor effectual in their results, but both the amount of the dose and the frequency and time of administration should be gauged by a study of individual cases. Under the dietetic treatment in epilepsy, reference will be made to the deletion of salt, in the form of sodium chloride, from the dietary. This is an important modification in the treatment of epilepsy, as much smaller doses of the bromides may be prescribed.

The potassium, sodium, strontium, and ammonium salts are the most usually administered. Each is of value, but the sodium salt is the most efficacious. If the bromides are prescribed in combination the dose should not exceed 60 grains in the 24 hours. The bromide of strontium is less useful, but may be given in smaller doses, or in combination with one of the other salts.

Combinations of the bromide salts, with other remedies, which may have some influence either upon the nervous or circulatory systems, have been from time to time recommended, and are found useful in some cases. A combination of the bromides and digitalis has been found very satisfactory in cases with low arterial tension, irregular action of the heart, or failing compensation with valvular disease. Chloral hydrate may be added with great advantage in cases of prolonged serial epilepsy, or of the status epilepticus. The bromides and the glycerophosphates form a valuable combination in weak or debilitated cases, more especially in young women with anæmia or neurasthenic symptoms. Bechterew recommends the conjunction of the bromides with adonis vernalis, and sometimes with codein. A combination of a bromide salt with borax has been of service where the bromides or borax separately have been of little use.

Bromide, picrotoxin, and the arseniate of antimony (Gélineau's formula).[4]—Of the combinations of the bromides with other remedies I have found Gélineau's formula the most useful and satisfactory. It is prescribed in the form of dragées, containing 1 gramme of the potassium bromide, ¼ milligramme of picrotoxin, and ¼ milligramme of the arseniate of antimony. It has been used extensively in France, but does not seem to have been adopted to any extent in Britain. I have been in the habit of prescribing it during the past two years in those cases of epilepsy in which the pure salts of bromine are either not well borne or have been proved to be ineffective. In large doses picrotoxin is a producer of convulsions leading to spasms of a tetanic character, with death in coma. In small doses it is theoretically supposed to lessen the tendency to cerebral vaso-constriction, which is believed to be a fundamental factor in the causation of epileptic fits.

I have used the dragées in all forms of epilepsy with considerable success. My experience is that they are: (1) A more successful remedy in most cases than a single bromide salt; (2) less likely to lead to troublesome symptoms—e.g., acne or bromism; and (3) more easy of administration, being especially convenient either in augmenting or diminishing the dose.

The method of prescribing them is simple: one dragée to be taken either during or immediately after a meal, thrice daily for a week, an additional dragée being added weekly until the patient is taking 4, 5, or 6 per diem. I have found 6 dragées a day usually sufficient to hold the fits in check, although according to Gélineau as many as 10 or 12 daily may be taken. My experience of the remedy has not been sufficiently long to say definitely whether it is better in all cases than bromide alone, but with two or three exceptions it has been of great service in diminishing or even arresting fits in cases in which the bromides alone have been of no use.

Treatment by Drugs other than the Bromides.

In the days before the introduction of the salts of bromine in the treatment of epilepsy many remedies were used, sometimes with marked success, as may be seen from the satisfactory results obtained by Herpin, Reynolds, and others. On account of the not infrequent failure of the bromides to arrest, or even to ameliorate, epileptic attacks, it will be found necessary to prescribe some other medicinal remedy, and a large number have been from time to time advocated and employed.

Perhaps the drug most frequently used as a substitute for, or as an adjuvant to, the bromides, more particularly in England, is *borax* (sodium biborate). Introduced by Gowers many years ago as an anti-spasmodic, it has met with considerable favour in cases where the bromides have been of little service. Unless in combination with a salt of bromide I have not found it of particular use. It may be given in doses of from 10 to 30 grains thrice daily, but is apt to induce troublesome gastro-intestinal symptoms. If continued over long periods it may lead to cutaneous eruptions of a psoriasis-like character.

Belladonna was the chief anti-epileptic remedy of the pre-bromide days, and is still used in some cases with marked benefit when the bromides or other remedies have proved unsuccessful. It formed the chief remedy of Trousseau, Hufeland, Herpin, Reynolds, and others, and in the hands of the first named was mainly used in those cases complicated with nocturnal incontinence of urine. A combination of bromide and belladonna may be found useful in cases of otherwise intractable combined seizure types. It may be prescribed either in liquid form, as the tincture in doses of 5 or 10 minims, or in the form of a pill made of the extract or pulvis belladonnæ.

The *zinc salts* (oxide, valerianate, and lactate) are old established, and were occasionally successful remedies in the hands of the French physicians. Opium, as a remedy for epilepsy, dates from classical times. It is now only used in the opium bromide method recommended by Flechsig.[5] My experience of the treatment has not been such as to encourage further trial.

Strychnine has been recommended from time to time and used with considerable success by some physicians. In doses of 1-16th grain daily it may be continued over considerable periods. Its *modus operandi* is probably merely as a nerve tonic, although it may have some influence in strengthening the tone of the vaso-motor centres. Strychnine finds its most useful application in the treatment of nocturnal epilepsy, especially when there is reason to suppose that the blood pressure is materially lowered.

Monobromate of camphor, eosinate of sodium, chloretone,

[3] Laudenheimer: quoted by Binswanger, op. cit.
[4] Gélineau: Traité des Epilepsies, Paris, 1901.
[5] Flechsig: Neurologisches Centralblatt, 1893, p. 229.

and numerous other remedies have been tried, but without any special benefit. I have seen no particular advantage obtained by the use of bromipin, bromaline, bromocarpine.

The calcium salts.—Recent examinations into the coagulation of the blood in epileptics have led to the suggestion that the salts of calcium may be of use in arresting or diminishing epileptic seizures. As already shown, however, considerable discrepancy exists as to whether the blood in epilepsy coagulates more readily during a fit period. A more rapid coagulability during the four-and-twenty hours preceding a major seizure or serial attacks has been demonstrated (to my mind conclusively) by Dr. John Turner[6]; on the other hand, the observations of C. Besta[7] showed a diminished rate of coagulation—the fits apparently exerting no influence upon this.

Donath[8] prescribed chloride of calcium to a limited number of epileptics without materially affecting the number of the fits. I have myself prescribed the lactate of calcium in 10-grain doses in combination with bromide of potassium in a few cases with very satisfactory results, and Mr. A. R. Littlejohn[9] reports a case in which calcium lactate alone was prescribed with much benefit. It would therefore appear that the salts of calcium are worthy of further study in the treatment of epilepsy. It is not unlikely that the special type of the disease most suitable for treatment by these salts has yet to be defined.

Duration of Treatment.

The question as to how long bromide or any other form of medicinal treatment should be maintained is not one upon which any rigid statement can be made. Some authorities maintain that treatment should be continuous for a period of at least two years after the last seizure, but our experience at the Queen-square Hospital points to a much longer period as necessary. Epileptics attend there for many years after the arrest of the fits, as they find that stopping the bromide, even for a short time, conduces to a return of giddiness, or of "sensations" reminding them of their previous attacks. If nine years' freedom from fits is to be a gauge of a "cure" of epilepsy, then withdrawing the bromide under a period of five years in those in whom the fits are arrested would be injudicious. On the other hand, many persons in whom the disease has been arrested after a year or two of bromide treatment, remain free from attacks without the aid of any medicinal remedy.

The important practical point in this connexion is, that those patients who take bromide well, and in whom the fits are thereby kept in subjection, ought to persevere with the remedy and not to stop it. It is just when the fits have been satisfactorily controlled that further treatment is of most use. The withdrawal of medicinal treatment, therefore, in those in whom the fits have been arrested should be carried out gradually. Under no circumstances should bromides be withdrawn suddenly after their prolonged use.

Dietetic Treatment.

In all cases of recent epilepsy, whatever may be the medicinal treatment adopted, some modification of the diet from that of a person in normal health is desirable. In the treatment of this disease the primary object is to keep the dose of the bromide salts as small as possible, because owing to the protracted nature of the malady a prolonged course of bromide medication is advisable, even in those cases in which treatment is effective. Therefore, any dietetic modification which will permit of this being accomplished is of advantage.

As already pointed out in the first lecture, many causes have been assigned as the immediate excitant of epileptic seizures, but the only certain factor is the unstable condition and proneness to "discharge" of the cortical nerve cells in predisposed persons. In any attempt to formulate the principle which ought to guide the physician in considering the dietetic treatment there ought to be kept in mind the fact that nervous energy has its source chiefly in the albuminous and nitrogenised principles of food-stuffs.

It was an old speculation of Hughlings Jackson that the part played by salts and minerals should be investigated in their relation to the building up of structure and the development of function. As the chlorides and the bromides were strikingly homologous in their chemical and physical properties, he suggested that the efficacy of the bromide salts might be due to their replacing with greater energy the more common chloride salts. The practical application of this suggestion, however, was not carried out in the treatment of epilepsy until Toulouse and Richet[10] recommended a diet in which the total quantity of sodium chloride per diem was limited to one or two grammes. It was thought that by diminishing the quantity of the ingested chlorides, mainly in the form of sodium chloride or common salt, the bromides might be administered in smaller doses, and the risks of bromism thereby lessened.

Hoppe[11] has shown that one-third of the chlorine of the blood serum has to be replaced by an equivalent amount of bromine before any therapeutic result is obtained. When more than this is replaced bromide intoxication may occur. When less chloride is ingested, saturation takes place sooner. It has been shown that with a diet free from salt saturation takes place in from three to four days. This method of "salt starvation" in the treatment of epilepsy has been extensively tested with varying results. My own experience of the method has been such that when used in combination with a purin-free dietary very substantial benefit is derived, and relatively small doses of the bromides may be prescribed.

A "purin-free" diet is made up of those food-stuffs in which the "purin" or alloxur bodies are absent, or present only in such small quantities as to be negligible. Purin bodies exist in all forms of meat extract, in both the white and the red meats commonly used as food. They are present in large quantities in such substances as sweetbread, liver, and beefsteak. They are not present in milk, eggs, bread, butter, cheese, the farinacea, most fruits, some vegetables, and honey. They exist to only a moderate degree in most forms of fish, peas, beans, lentils, tea and coffee, and oatmeal.

I have used this diet, or a modification of it, containing, according to the needs of individual cases, a small portion of fish either once daily or three times a week, for several years in conjunction with the bromides or Gélineau's dragées. The results have been such that I am led to advise it in all cases of recent epilepsy. 1. In cases in which the bromides alone have been of little or no use the adoption of the purin-free saltless diet has at once led to material improvement. 2. By its aid the dose of the bromides has been largely reduced, as it is in cases refractory to relief by bromides that some physicians increase the salts to such an extent that bromism is brought about and maintained. 3. If properly supervised symptoms of bromism never appear. 4. If the patient show any signs of loss of weight the addition of cream or cod-liver oil is usually sufficient. If not sufficient it is advisable to permit fish, or even a little lamb or mutton.

B. CONFIRMED EPILEPSY.

In cases of confirmed epilepsy with mental deterioration the use of the bromides is of relatively little value. According to Féré, the bromides are only of use when the dose is so large as to produce toxic effects. Their continued administration in these cases does, however, produce a diminution in the number, and perhaps in the severity, of the seizures. With a view to test the efficiency or otherwise of a 30-grain dose of bromide salt administered every evening to a number of confirmed epileptics in an institution, the dose was stopped for a month and the total number of fits, with or without bromide, was compared. During this period the fits were increased in frequency by about one-third (278 to 402).

My experience of the treatment of confirmed epilepsy is that the administration of the bromides is of little real service. It was long ago pointed out by Esquirol that any change of treatment was temporarily beneficial. Bringing epileptics under the generally favourable hygienic surroundings of a hospital will often conduce to material temporary improvement, without the aid of any medicinal remedies.

As with medicinal treatment, so with dietetic modifications. I have not seen any material benefit obtained in cases of confirmed epilepsy by aid of the salt-free or purin-free diets. The majority of the cases feel better when on the purin-free diet. But there is no marked improvement in the frequency or severity of the seizures, except perhaps in those cases in which the fits occur in series.

These observations would bear out what has been constantly noted in the treatment of epilepsy—viz., that in the confirmed

[6] John Turner: Journal of Mental Science, October, 1908.
[7] Besta: Riforma Medica, 1906, No. 43.
[8] Donath: Epilepsia, 1909.
[9] Littlejohn: THE LANCET, 1909, vol. i., p. 1382.
[10] Toulouse and Richet: Académie des Sciences, 20. xi.
[11] Hoppe: Neurologisches Centralblatt, 1906, p. 993.

disease little if any benefit is derived from treatment. In other words, those cases in which the disease has become established upon an organic foundation require to be lodged preferably in an institution for epileptics, where they may be prescribed (1) regular and congenial employment, (2) a judicious alternation of work and play, and (3) a suitably arranged and simple mode of life, with avoidance of excitement and abstinence from alcoholic liquors.

ON FERRO-SILICON, WITH SPECIAL REFERENCE TO THE POISONOUS GASES LIABLE TO BE EVOLVED THEREFROM.[1]

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Dr. Arthur Newsholme, in some prefatory remarks in a recently published supplement to the Thirty-eighth Annual Report of the Local Government Board dealing with ferro-silicon,[2] briefly sums up the circumstances which led to a special investigation of this material in the following words:—

> The possibility of danger to life from the transport of ferro-silicon had already received attention in this country through a "Notice to Shipowners, Shipmasters, and Shippers" issued by the Board of Trade in September, 1907, but the magnitude of the risks involved in the treatment of this material and the need for more stringent regulations was strikingly demonstrated by the death of five Russian immigrants on board the s.s. *Ashton* in December, 1908, during this ship's voyage from Antwerp to Grimsby. Inquiries made on behalf of the Local Government Board into this occurrence brought to light a number of previous accidents in connexion with the transport of ferro-silicon, and after conference with the Home Office and the Board of Trade the full investigation of this subject was placed in the hands of Dr. Copeman.

For the purposes of this investigation Dr. S. M. Copeman visited in the first instance Sheffield, and later Rotherham, Hull, Grimsby, Liverpool, Manchester, and Wednesfield, and was assisted in his inquiries in Sheffield by Mr. R. S. Bennett, one of H.M. inspectors of factories. Dr. Copeman also visited various factories where ferro-silicon is made in the south-eastern district of France, whence the greater quantity of this material is exported to England. Ferro-silicon is also manufactured in some parts of Austria, Switzerland, and Italy, and in Norway and Sweden. Dr. Copeman inspected the various processes of manufacture, and collected a large number of samples of this material from the manufacturers and users, and I esteem myself fortunate in having been recommended by him to examine these samples chemically and "to assist in defining the nature and extent of the danger from ferro-silicon."

The report which Dr. Copeman recently presented on the whole matter covers 115 pages, and includes a report by Mr. Bennett on the physical structure and properties of ferro-silicon and my own investigations. This report is already becoming scarce owing to the great demand for it on the part of those specially interested, and I thought that a very brief *résumé* of the main facts set forth, and more particularly as regards the poisonous gases liable to be evolved from ferro-silicon, would also have a special interest for this society, as the subject is comparatively new from a toxicological point of view, and is essentially medico-legal in its aspects.

Nature and Uses of Ferro-silicon.

Few people are aware of the nature and uses of ferro-silicon, which has only been manufactured on a large scale during the last ten years and of which some 4000 tons are annually imported into England from France. Without entering into unnecessary details, I may say that ferro-silicon is a physico-chemical alloy of iron and silicon which is employed in the manufacture of steel. Silicon has a high calorific value and acts as a metallurgical fuel; hence, by causing molten steel to remain fluid for a long time it enables thin and intricate castings to be made, and by its reducing action it prevents the formation of blowholes in castings. The addition of silicon to steel imparts to it, among other valuable physical properties, a high tensile strength when present to the extent of rather less than 1 per cent., together with small proportions of carbon and manganese. Hence, silicon steels are used in motor-car construction. The proportion of silicon in ferro-silicon varies from 10 per cent. to 96 per cent. When the proportion of silicon is under 25 per cent. the alloy is known as low-grade, while when it is above 25 per cent. the alloy is called high-grade ferro-silicon. The low-grade variety can be made in blast furnaces, but the higher grades require the very high temperatures only obtainable by the electric furnace. Hence, while low-grade ferro-silicon is made in England, high-grade ferro-silicon is at present almost exclusively manufactured on the continent. Although the high-grade variety is more costly, certain technical advantages derived from its employment have caused it to largely displace the low-grade ferro-silicon.

Fatal and other Accidents due to Transport and Storage.

It has, however, been discovered, and the facts have only gradually come to light in connexion with what seems to me an appalling sacrifice of human life, that high-grade ferro-silicon is liable to evolve gases of a deadly poisonous nature when brought into contact with water, or even when exposed to the action of moist air. In the first portion of his report Dr. Copeman describes in detail the various accidents, fatal and otherwise, which are known to have occurred up to the present time in connexion with the storage and transport of ferro-silicon. A very brief reference to these will be of interest.

December, 1903.—The earliest record is that of an explosion of some iron drums containing ferro-silicon which had been brought to Liverpool by the s.s. *Veria*. A porter was seriously injured by the explosion. The late Dr. Dupré, F.R.S., and Captain Lloyd, R.A., investigated the matter and attributed the explosion to the presence of phosphoretted hydrogen. Mr. Watson Gray came to a similar conclusion and also found that acetylene and arseniuretted hydrogen were evolved by the material.

January, 1905.—On the s.s. *Vaderland* during a voyage from Antwerp to New York 50 of the steerage passengers lodged over a hold in which a cargo of ferro-silicon was stored were made seriously ill by the fumes given off by this substance and 11 died on board. The deaths were certified as due to "pneumonia"; a first official inquiry attributed them to unknown causes; later, a fuller inquiry revealed the true cause.

October, 1905.—Dr. J. F. Robertson of Althorpe was called to the Keadby Canal to see two children, aged 3 and 4 years, lying ill in a canal boat. One of the children was dead before he arrived, the other was in a state of collapse and died soon afterwards. The father and mother suffered from abdominal pain, sickness, and diarrhœa. A peculiar and pronounced smell was noticeable in the cabin. No poison was found in the food or viscera in the post-mortem examination, only some congestion of the lungs was observed. Five tons of ferro-silicon were on board. Death was attributed to the fumes from this material. The coroner communicated the facts to the Board of Trade.

March, 1906.—Two children died on board a Rhine boat (*Caroline*) of Mannheim. There was a cargo of 750 cwt. of high-grade ferro-silicon on board which was stored immediately under the cabin. Dr. Lehnkering of Duisberg investigated the matter and proved the evolution of phosphoretted hydrogen from the cargo. The parents of the children suffered from headache and giddiness, but kept as much as possible on deck. Dr. Lehnkering refers to other similar instances of poisoning and one death on Rhine boats.

February, 1907.—The *Olaf-Wyk* arrived at Antwerp on the evening of Feb. 12th, having left Gothenburg on the 9th with six passengers; four of the passengers died during the voyage; the captain, the stewardess, and some of the crew were also taken ill, but recovered. Fifteen tons of ferro-silicon were on board in the hold of the vessel immediately under the passenger cabins. Professor Cronquist of Stockholm and Messrs. Bruylants and Druyts of Antwerp investigated the matter and proved evolution of phosphoretted and arseniuretted hydrogen. The latter calculated from their experiments that the cargo was capable of evolving 2500 litres of phosphoretted hydrogen containing 5 per cent. of arseniuretted hydrogen. (0·025 per cent. PH_3 in air is a fatal proportion.)

May, 1908.—On the s.s. *Uleaborg* during a voyage from Stockholm to St. Petersburg nearly all the crew and second-class passengers were taken ill; two deaths occurred.

[1] A paper read before the Medico-Legal Society on June 21st, 1910.

[2] On the Nature, Uses, and Manufacture of Ferro-silicon, with Special Reference to Possible Danger arising from its Transport and Storage (Cd. 4958), 1909.

Forty-five tons of ferro-silicon were stored in the holds of the ship.

October, 1908.—The "captain" and his mate on board the canal boat *Harry* were taken ill and died from the effects of poisoning by fumes from 91 barrels of ferro-silicon during a voyage from Goole to Sheffield. The "captain's" wife, Mrs. B., was taken ill, but recovered. The ferro-silicon was described as "scrap iron." Ptomaine poisoning was suspected at first. Legal proceedings were taken by Mrs. B., who was awarded damages.

Other canal-boat cases.—On further inquiry at Sheffield several similar cases on canal boats were brought to light. In one instance two boys aged 14 and 16 years, and in another two children were found unconscious in their cabins; in the latter case a dog was found dead in the same cabin.

December, 1908.—Finally, the death of five Russian immigrants occurred on the s.s. *Ashton* during a 24 hours' voyage from Antwerp to Grimsby. This was widely reported in the press and will probably be fresh in the minds of members of this society. Dr. W. B. Simpson investigated the cause of death. Cholera and ptomaine poisoning were suspected, but the deaths were finally traced to the evolution of gases from a cargo of ferro-silicon by Professor W. R. Smith.

Illness among workmen.—Reference is also made to illness among workmen in steel works due to fumes from ferro-silicon.

As already noted, it was this last unfortunate incident on the s.s. *Ashton* which determined the investigation of the whole matter by the Local Government Board.

It will have been seen that in connexion with most of the inquiries relating to these numerous fatalities there was, in the first instance, considerable mystery as to the cause of death, and although several eminent scientific workers were engaged in some of the investigations it only gradually became clear that this product of technical industry, which was held in such high esteem by its manufacturers and users, was also, under certain circumstances, a dangerous and deadly instrument of destruction.

Notwithstanding these tragic events the material continued to be manufactured and used, a condition which necessarily obtains when a large outlay of capital is involved, but some echo of a growing uneasiness began to be reflected on the part of shippers who refused to take consignments of ferro-silicon, and among foreign manufacturers, who met to discuss the precautions necessary to be taken in view of the fatalities which had occurred. Matters had reached this stage when Dr. Copeman commenced his inquiry, which may well be described as a delicate and difficult one, inasmuch as the interests of the steel trade were at stake as well as those of the manufacturers, and there was a tendency among shippers to condemn the material wholesale. More minute inquiries have shown that this dangerous tendency to evolve poisonous gases was more especially referable to certain grades of ferro-silicon, notably to those averaging a content of between 40 per cent. and 60 per cent. silicon, and that some of these grades especially showed the curious physical property of spontaneous disintegration; the lumps of which they consisted were found to be liable to crumble during transport and in some instances to actually fall to powder, thus presenting a larger surface to the action of a moist atmosphere and hence becoming liable to evolve greater quantities of injurious gases.

Chemical Investigation of Ferro-silicon.

A careful examination of a large number of samples has fortunately demonstrated that this tendency to disintegration is confined more especially to the middle grades, while in the lower and higher grades it is absent, and the serious situation which had arisen seems now in a fair way to a successful solution. I propose to show you briefly some of the steps by which this desirable conclusion was reached.

In describing my own experiments I should like to say that without the mass of information and intimate acquaintance of the various conditions involved, which Dr. Copeman placed at my disposal, I could not, even in the six months over which my work extended, have arrived with equal certainty at the conclusions which I am glad to think "assisted in defining the nature and extent of the danger from ferro-silicon." (I had over 70 samples of this material submitted to me, representing all grades and most leading manufacturers.)

I will first point out the origin of the impurities which cause the evolution of these poisonous gases from certain grades of ferro-silicon. For this purpose I must refer briefly to the method of manufacture of the higher grades.

Manufacture.—A mixture of steel turnings obtained from gun foundries, together with quartz and coal from neighbouring mines, is put into an electric furnace of a capacity of about 1500 kilogrammes and heated to a temperature roughly computed at from 1800° to 2000° C. The quantities of quartz (which contains about 96 per cent. of silica or silicon dioxide, SiO_2) and anthracite coal (containing about 90 per cent. of carbon and 10 per cent. of ash) are always used in the proportion of one molecule of silica to two atoms of carbon, so that complete reduction of the former to silicon (Si) shall occur, according to the chemical equation:— $SiO_2 + 2C = Si + 2CO$. The proportion of iron taken varies, and depends on the grade of ferro-silicon required—that is, on the desired percentage of silicon in the alloy ultimately produced.

Impurities.—Certain impurities originally present in the coal, iron, and quartz used, or formed from them during the process of manufacture, are always present, and some of these, although amounting to a very small percentage of the finished product, are the ultimate cause of the serious mishaps which have arisen from the extended use of ferro-silicon.

Calcium phosphate [$Ca_3(PO_4)_2$], one of the impurities present in coal and in quartz, which in itself is a perfectly harmless salt, insoluble in water and widely diffused in nature, is responsible for the production of a dangerous compound by reduction in the electric furnace, in the presence of carbon, to *calcium phosphide* (Ca_3P_2). This calcium phosphide remains in the ferro-silicon, and in contact with water or moist air is decomposed with evolution of *phosphoretted hydrogen* (PH_3), the intensely poisonous character of which has been referred to above. I examined three samples of quartz and three samples of coal or coke used by various manufacturers and found calcium phosphate in considerable quantity in all of them.

Arsenic, again, an element closely allied to phosphorus in its properties, is another impurity liable to be present in various combinations in coal and in iron, and this element also finds its way into the ferro-silicon apparently as *calcium arsenide*. Calcium arsenide is also decomposed by water or moist air, evolving *arseniuretted hydrogen* (AsH_3), a gas scarcely, if at all, less poisonous than phosphoretted hydrogen.

Acetylene (C_2H_2) was formerly found as an impurity evolved by ferro-silicon, but this was probably due to the fact that furnaces used for the manufacture of calcium carbide were also used for making ferro-silicon. This is no longer the case. Acetylene is not generally considered poisonous unless present in large proportions in air, its alleged poisonous properties being in all probability due to a small amount of phosphoretted hydrogen which it is likely to contain.

Silicuretted hydrogen (SiH_4) has also been somewhat loosely suggested as an impurity liable to be evolved by ferro-silicon, but this gas is decomposed in contact with moist air into silica and hydrogen.

From my own experiments, as well as from a consideration of the chemical facts above referred to and of the mode of manufacture, it became finally evident that the poisonous emanations evolved from ferro-silicon by the action of water consist mainly of phosphoretted hydrogen—sometimes alone, but for the most part accompanied by varying proportions of arseniuretted hydrogen. These two gases are deadly poisons, and among the symptoms common to both, produced by their inhalation, are severe abdominal pains, nausea, vomiting, great weakness and prostration, gradual loss of consciousness, and death frequently within 24 hours. Phosphoretted hydrogen has been proved by recent experiments [3] to be fatal to animals when present in air in the small proportion of 0·025 per cent., and, so far as experience goes, arseniuretted hydrogen is scarcely less toxic.

Qualitative proof of phosphoretted hydrogen.—The first step in the examination of the samples was to prove by a qualitative test the presence or absence of phosphoretted hydrogen. I devised for this purpose a simple and rapid test based on Scherer's test for phosphorus in cases of poisoning by that element. Phosphoretted hydrogen, as is well known, blackens filter-paper which has been moistened with a solution of silver nitrate, but will not affect a test

[3] Jokote: Archiv für Hygiene, Band xlix., pp. 275-306, 1904.

paper moistened with a solution of lead acetate. Inasmuch as sulphuretted hydrogen blackens both of these test papers this gas must be absent when the test is applied. In only one sample out of the many which I tested did I find sulphuretted hydrogen evolved by the action of water alone on ferro-silicon. I took a conical Erlenmeyer flask of about 75 cubic centimetres capacity and fitted it with a cork, into which was inserted a short piece of glass rod, the free end of which was drawn out so as to form a double hook. On these hooks were hung the two test papers above referred to. About 1 gramme of the freshly powdered sample was placed in the bottom of the flask, half a cubic centimetre of water was added so as to moisten the powder, and the cork with its suspended test papers quickly replaced in the neck of the flask. Without entering into details the following table summarises the results of this preliminary test with 64 samples:—

Percentage of silicon in samples.	Effect produced on test-paper, moistened with silver nitrate solution, by gases evolved from 1 gramme of powdered ferro-silicon samples by the action of water at ordinary temperatures.		
	Number of samples producing—		
	(*a*) Faint or no colouration.	(*b*) Brown, orange, or gradual black.	(*c*) Immediate intense black.
10 to 35	16	None.	None.
42 ,, 52	1	4	28
60 ,, 75	None.	2	7
80 ,, 96	None.	2	4

Quantitative Determination of Poisonous Gases Evolved from Ferro-Silicon.

It is obvious from a consideration of the chemical work already published that the object of the various investigators has been in each case to show that, under the particular circumstances of a given fatality, sufficient amounts of phosphoretted (and arseniuretted) hydrogen were yielded by the action of moist air on the ferro-silicon cargoes to produce an atmosphere containing a toxic proportion of these gases.

To prove this point they took samples of the ferro-silicon, and having broken them up into small fragments they placed them in a tube, flask, or other convenient vessel, so that moist air could be passed over the lumps and be subsequently examined by qualitative or quantitative tests. Great ingenuity and skill have been displayed in such experiments, but the processes employed were for the most part capable of affording approximative results only and tended rather to underestimate than otherwise the phosphorus and arsenic present in gaseous combination.

The problem I had before me in examining a large number of samples of ferro-silicon from very various sources was, however, of an entirely different character, for it was obvious, in the first place, that it was essential not only to prove the presence or absence of phosphoretted and arseniuretted hydrogen, but to make the experiments in such a manner as to compare all the samples without prejudice to any particular manufacturer. In order to cope with this problem successfully it was clearly necessary to determine the *total poisonous impurities* in each of the typical samples examined. On this basis only was it possible to make a complete and entirely fair comparison. It further became necessary to devise some of the methods by which both the phosphoretted hydrogen and arseniuretted hydrogen could be accurately and separately determined, as especially in the case of the first-named gas no generally recognised methods have been suggested. I think, however, I have successfully overcome this difficulty.

Estimation of phosphoretted hydrogen.—After several attempts to oxidise the phosphoretted hydrogen by passage of the gas evolved from the samples into (1) nitric acid, (2) permanganic acid, (3) bromine water, &c., none of which methods proved satisfactory for various reasons, I finally made the following three series of experiments on a number of typical samples, approaching the estimation from three entirely different standpoints, with what, I think, may be considered a practically perfect agreement of results.

The following is a description of the methods employed:—In all cases immediately before making the estimations the sample was powdered and three quantities of 10 or 20 grammes were weighed at once and placed in three flasks of 100 cubic centimetres capacity, with 20 cubic centimetres of water, and the flasks corked. Identical samples were thus secured, and the following three estimations carried out without delay.

(*a*) *Estimation of silver precipitated from a decinormal solution of silver nitrate by the gas evolved from a known weight of the powdered sample by the action of water.* [3 Ag = PH_3]—One of the flasks containing the sample mixed with water, as above described, was next fitted with a cork through which a piece of thermometer tubing, bent twice at right angles, was passed, a pipette being attached to the free end of this delivery tube. The flask with cork and fitted tubes attached was then fixed over a sandbath, and the end of the pipette arranged to dip to the bottom of a conical vessel containing 10 cubic centimetres of decinormal silver nitrate solution. The sandbath was then heated and the temperature gradually raised till the water in the flask boiled. As the gas evolved bubbled through the silver nitrate solution, a black precipitate of silver phosphide was immediately produced. The heating was continued usually for about 10 to 15 minutes until no more gas was evolved, which was proved by disconnecting the pipette from the delivery tube and testing the issuing steam with a moist silver nitrate paper, when usually no discolouration occurred or the faintest brown tinge was produced. The pipette was then rinsed into the conical vessel and the silver solution filtered from the black precipitate, which was washed until the washings were free from silver. To the filtrate were then added 10 cubic centimetres of strong nitric acid and 5 cubic centimetres of saturated iron solution, and it was then titrated with decinormal ammonium thiocyanate according to the well-known method of Volhard. The residual unreduced silver was thus estimated. By this process, which has the special advantage not only of extreme accuracy but also of great rapidity, the weight of silver reduced by the gas evolved from a known weight of the sample is found.

From the relation $3Ag=PH_3$ the number of cubic centimetres of phosphoretted hydrogen corresponding to the weight of silver precipitated can be calculated. Absolutely identical results are obtained on repeating the estimations, provided that the material for experiment is taken from the same powdered example.

(*b*) *Estimation of gold precipitated from a solution of gold chloride by the gas evolved from a known weight of the powdered sample by the action of water.* [Au = PH_3]—Exactly the same apparatus was used as above described and the experiment carried out in the same manner, except that the gas evolved was led into 25 cubic centimetres of a 0·5 per cent. solution of gold chloride and the metallic gold so precipitated was collected on a filter and weighed.

(*c*) *Oxidation, and estimation as magnesium pyrophosphate, of phosphorus precipitated as silver phosphide in a solution of silver nitrate by the gas evolved from a known weight of the powdered sample by the action of water.* [$Mg_2P_2O_7 = 2PH_3$]—This experiment was carried out exactly as described under (*a*), but instead of filtering the silver solution, this solution, together with the suspended precipitate, was transferred to a dish, oxidised with nitric acid, the silver removed by means of sulphuretted hydrogen, and the phosphoric acid present estimated as magnesium pyrophosphate.

The results of all three experiments in this series were then compared, and were found, on the whole, to agree closely, although one or two of the silver estimations showed a rather higher result than was given by the gold and pyrophosphate methods. The following examples illustrate this agreement:—

Number of sample.	Volume of phosphoretted hydrogen evolved from 10 grammes of powdered sample, calculated from:—		
	(*a*) Weight of silver.	(*b*) Weight of gold.	(*c*) Weight of pyrophosphate.
LI.	2·52 c.c.	2·36 c.c.	2·50 c.c.
LII.	3·03 ,,	2·93 ,,	3·00 ,,
XXXIV.	3·60 ,,	3·61 ,,	3·50 ,,
XXXV.	1·26 ,,	1·01 ,,	1·08 ,,
,,	1·63 ,,	1·41 ,,	1·50 ,,
LIX.	4·74 ,,	4·39 ,,	4·42 ,,

(*d*) *Estimation of alkalinity* (lime) *of samples after being acted upon by water.*—It has already been pointed out that by the reduction of calcium phosphate [$Ca_3(PO_4)_2$] present in coal and quartz, calcium phosphide (Ca_3P_2) is liable to be formed during the manufacture of ferro-silicon.

I tested the samples of ferro-silicon after they had been acted upon by water and found that when any gas had been evolved the contents of the flask were invariably alkaline to litmus and that the water used contained free lime. I therefore made determinations of the alkalinity after the action of water in a large number of samples.

I had hoped that these lime estimations would add a fourth method to those already described for the estimation of phosphoretted hydrogen. But assuming the lime to have been originally present in the sample as calcium phosphide (Ca_3P_2), the quantities found corresponded, in the majority of instances, to only one-third or one-half of the volume of phosphoretted hydrogen found by the previous three methods, except in the case of samples containing from 60 to 96 per cent. silicon, where for the most part the agreement was fairly close, while in two instances an excess of lime was found. The discrepancies noted, therefore, require explanation, and the following occurs to me as probable—viz., that the greater amounts of phosphoretted hydrogen found by the first three methods of determination (which agree *inter se*) are partly accounted for by the presence of calcium phosphide and partly by the fact that some free phosphoretted hydrogen is occluded in the samples.

The assumption of occlusion in certain grades is strengthened by the sudden evolution of gas which occurs on breaking lumps of ferro-silicon containing about 50 per cent. of silicon. This sudden evolution of offensive gas which is so characteristic can scarcely be accounted for by the decomposition of calcium phosphide only, which, although it occurs rapidly in a moist atmosphere, is not instantaneous.

Arsenic.—That arseniuretted hydrogen is present in some samples has already been demonstrated by previous investigators. Apparently, however, no attempt has been made to test directly for arsenic in the gas evolved by the action of water on ferro-silicon, to effect which I devised the following experiment:—

Carbon dioxide evolved from pure marble and pure hydrochloric acid in a Kipp's apparatus was passed first through a Drechsel wash-bottle, containing a solution of sodium bicarbonate, to arrest any traces of hydrochloric acid, and next into a flask containing the powdered ferro-silicon and water. This flask was fitted with an indiarubber stopper perforated by two tubes, one for the inlet of the carbon dioxide, the other for the outlet of the same gas, together with any other gases evolved. The mixed gases were then passed through another Drechsel wash-bottle containing a little water, and finally through a calcium chloride tube before passing through a narrow tube of Jena glass with its end drawn out, such as is used for the deposition of arsenic from a Marsh-Berzelius apparatus. The Jena glass tube was heated by a small Bunsen flame.

The carbon dioxide gas was first tested for arsenic by passing it for a considerable time through the apparatus before putting the flask containing the sample into connexion. The flask containing 10 or 20 grammes of the powdered ferro-silicon together with 20 cubic centimetres of water was then connected up and gently heated and the carbon dioxide slowly passed through. In the majority of cases, with certain exceptions, a black deposit was obtained, which in all instances was proved to be arsenic by the production of well-defined microscopic crystals (tetrahedra and octohedra) of arsenious oxide in the usual way.

I had hoped to estimate the arsenic by this method, by weighing the Jena tube before and after the experiment, and did in fact make a few such weighings. Obviously, however, some phosphorus was also deposited, the amount of which, though exceedingly small, proved sufficient to entirely vitiate the quantitative estimation of the arsenic. Sometimes the phosphorus was just visible as an orange deposit near the flame, while sometimes, though present, was not to be seen. I therefore resorted to another method of estimating the arsenic after the removal of the phosphoretted hydrogen which is described later.

These preliminary experiments, however, served a useful purpose, and it is for this reason that they are mentioned—viz., *they proved the simultaneous presence of phosphoretted and arseniuretted hydrogen in the gases obtained direct by the action of water on ferro-silicon samples.*

The phosphorus deposited with the arsenic in these experiments was proved to be such by conversion into phosphoric acid with nitric acid and application of the molybdate test. Some experiments were made with calcium phosphide and water alone under the same experimental conditions, the results of which showed that about 20 per cent. of the phosphorus present in the phosphoretted hydrogen evolved was thus deposited, the remaining 80 per cent. being volatilised.

Estimation of arsenic in the samples.—The gases evolved from 10 or 20 grammes of a powdered sample of ferro-silicon by the action of water were passed into decinormal silver nitrate solution and the reduced silver solution filtered. Any traces of arsenic present would be contained in the filtrate in the form of arsenious acid (Hoffmann's reaction). The filtrate was then poured into a Marsh-Berzelius apparatus in which hydrogen was being evolved. In nearly all cases, with some exceptions, arsenic was deposited as a mirror in the Jena glass tube and its weight obtained.

All the usual extreme precautions were taken in these estimations. The Marsh-Berzelius apparatus was entirely constructed of glass; the zinc and hydrochloric acid used for the evolution of hydrogen were specially tested for purity, &c., in the manner well known to toxicologists.

From the amount of arsenic obtained from a known weight of the sample the corresponding volume of arseniuretted hydrogen was calculated from the relation $As = AsH_3$.

The greatest amount of arsenic obtained from 10 grammes of any sample was 1·6 milligrammes. In some cases, however, the reaction was negative and in others varied from an unweighable trace to 1·2 milligrammes. The volumes corresponding to these weights are 0·0 to 0·47 cubic centimetre, or, expressed as percentage volume of total poisonous gas evolved, from 0·0 to 13·0 per cent., the average being about 7·5 per cent.

I have omitted reference to many other experiments which I made in the course of my investigations, such as determinations of relative hardness and specific gravity, observations as to presence or absence of disintegration after the lapse of some months' storage, and of the effect of exposure of samples to moist and dry air respectively, all of which are described at length in the Local Government Board Report. I should also have liked to refer to Mr. Bennett's interesting report on the physical structure and properties of ferro-silicon, but time will not permit me to discuss these points.

I will therefore conclude by a reference to the general summary of my results in which I have expressed approximately the total volume of poisonous gases evolved from some samples of ferro-silicon in cubic feet per ton. The following abbreviated table will suffice to indicate the general results arrived at on this point:—

Percentage of silicon in samples.	Number of samples examined.	Number of samples evolving PH_3 and AsH_3 in contact with water.	Range of volume of poisonous gases evolved (cubic feet per ton).
10-29	3	1	0·26
30-35	1	1	0·13
42-49	9	9	2·1 to 16·4
50-52	8	8	2·4 to 15·8
60-62	1	1	1·0
70-96	6	6	2·1 to 5·7
—	28	26	—

These figures are given with a view to emphasise the potential danger of certain grades of ferro-silicon in connexion with its transport, storage, and use in large bulk; and when it is remembered that phosphoretted hydrogen acts fatally when present in so small a quantity as 2½ volumes of the gas in 10,000 volumes of air, and that arseniuretted hydrogen is scarcely less dangerous, it will be seen that the atmosphere of a cabin on board ship might, under certain conditions, very rapidly assume a toxic character if ferro-silicon forms a part of the cargo, as has indeed been sadly demonstrated by the fatalities already recorded.

After consultation with Dr. Copeman, and as a general conclusion based on the examination of 64 samples of all grades, I have classified these grades in three groups as follows:—

Class I., 10 to 30 per cent. silicon, containing practically no poisonous impurities and not liable to spontaneous disintegration.

Class II., 70 to 96 per cent. silicon, not entirely free from poisonous impurities but also not liable to disintegrate spontaneously.

Class III., 35 to 60 per cent. silicon, containing, in most instances, a considerable proportion of poisonous impurities and in addition being more or less liable to spontaneous disintegration.

Finally, I am pleased to be able to state that the summary of conclusions and suggested regulations as to precautionary measures in connexion with the transport and storage of ferro-silicon put forward by Dr. Copeman on pp. 113–115 of his report have been officially adopted without any modification by the Board of Trade.

ON THE NOTIFICATION OF CONSUMPTION.

BY THE RIGHT HON. R. FARQUHARSON, M.D. EDIN.

IN January of this year what the admirable John Burns calls "our great Notification of Tuberculosis Order" was issued, and is now, I presume, rigorously enforced. Medical opinion seems to be strongly in its favour, and the general public, with the indolent and lamblike docility which is so much easier than independent thought, peacefully follow suit. Shall I be considered very ignorant and retrograde if I interpose my possibly insignificant Partington mop between these surging, popular waves and their victims, and give some reasons for my belief that this legislation is hasty, unnecessary, and likely to cause so much oppression, that many may consider the remedy to be even worse than the disease.

Now, on what do I base this conviction? First and foremost on the admitted fact that consumption, instead of being on the increase, is rapidly diminishing, and although it is sadly true that "the world loses 70,000 people through the scourge of tuberculosis every year, in the past 40 years it has been reduced some 50 per cent. The death-rate was 247 per 100,000 in 1860–70; it was but 115 per 100,000 in 1906, or 52 per cent. decrease in forty years." There can be no doubt about the absolute authority of these figures, for they were quoted by the President of the Local Government Board in the practical and eloquent address delivered by him when he opened the Whitechapel Tuberculosis Exhibition in June, 1909.

And do they not give us cause for serious reflection? If the incidence and spread of consumption are really on the downward grade, what is the excuse for all this excitement and worry about it? The British nation, as we all know, are subject to periodical scares, which blaze up on slight provocation and happily cool down with equal rapidity, and it ought to be the duty and the privilege of the medical profession to check the supply of fuel to the flames. Many ignorant people honestly believe that mere contact with a consumptive is dangerous; that the air they breathe is impregnated with infection, and that if he ventures to spit, they must flee in terror to some safer place. Foreign health resorts are boycotted because a few poor victims may be seen to drag their feeble limbs up and down the parade, or to seek the sheltered security of a bath-chair. The phthisical member of a family is looked upon with suspicion; a fit of coughing at a public dinner table fills the other guests with dismay, and if the official regulations for compulsory notification are rigidly enforced, the working man, branded as a leper and proclaimed to the world as a focus of infection, must necessarily join the already swollen ranks of the unemployed and with his family belongings become a burden to the State.

Now comes the next and even more important point—and that is a grave doubt in my mind as to the really dangerous infection of consumption. In my student days we were taught to look upon the Italians as little better than lunatics because they brought forward plausible evidence in favour of the direct personal communication of tubercle, in which they enthusiastically believed, and professional scepticism on this point was not only removed but exchanged for ardent advocacy the other way by Villemin's experiments. Scientific scepticism is a valuable thing, more especially when it is allied to Scotch caution, so I think I need make no apology for hesitating to accept the brilliant Frenchman's conclusions as absolutely satisfying. An animal known to be exceptionally susceptible to consumption is removed from its familiar surroundings. It is closely caged in a box under depressing and insanitary conditions; a lump of tubercle (probably what Professor Sims Woodhead calls "a maximum dose of infection far in excess of what was necessary to produce infection under ordinary circumstances") is violently thrust into its tissues, and before it has had complete time to recover from the shock and general disturbance it is killed and evidences of infection are not unnaturally found. I for one decline to accept the full analogy between this artificially created chain of events and what takes place in the human body, and to show that I do not stand alone in doubting the necessarily fertile effects of the grain when planted on ordinary soil I will appeal to the high authority of speakers at the recent conference in Edinburgh—many of whom agreed that caution towards animal experimentation was necessary.

The first witness I call in favour of my contention is no less a person than the late President of the Royal College of Physicians of London. My friend Dr. D. W. Samways of Mentone, in a remarkably able and suggestive letter in the *British Medical Journal*, quotes Sir Douglas Powell as saying:—

> My own personal experience and observation convince me that, apart from artificial conditions, such as those brought about by experiment and in the ordinary circumstances of life, phthisis is not an infectious malady.

Laennec's experience was the same, and Dr. Samways adds his own opinion:—

> It took centuries for the profession to discover phthisis was infectious, and it is doubtful had we depended upon clinical observation and experience alone whether it would not have taken centuries more. Is a phthisical patient who has been taught to expectorate into a suitable receiver a danger to anyone? If not, why should he be treated as an outcast?[1]

The opinion of the world-renowned authority, Koch, stated in his paper translated for the Sydenham Society by Mr. Stanley Boyd:—

> Many practical men have no doubt kept in mind the possibility of infection, but with the medical profession generally phthisis is regarded as the result of constitutional peculiarities rather than of direct contagion.

Dr. Sinclair Coghill spoke of consumption as "conditionally infectious—i.e., certain conditions must be present before the invading element, the bacillus, can initiate the infective process"; and, again, Sir Hugh Beevor concluded as a result of a close examination of the problem that "the term infectious is too loose a term to apply to both measles and tuberculosis." He suggests that "sub-infectious" is the most appropriate term.

Whitelegge and Newman in their text-book speak of phthisis as "a true infective disease, but a sub-infectious one."[2] Dr. Hermann Biggs has laid special stress on the importance of differentiating between tuberculosis and the acute infectious diseases, and Dr. H. T. Bulstrode, with the judicial impartiality which distinguishes his admirable report, thus sums up the case:—

> Tuberculosis may, perhaps, be best viewed as occupying a distinct and separate position from the exanthemata, and as regards its duration, and *low degree of infectivity*, meriting a class by itself. (The italics are mine.)

But if consumption were really so infectious in its nature as popular, no less than some medical, opinion seems to believe, we should naturally find that those whose occupations bring them perpetually into contact with the sick would fall victims to the disease. But here again the evidence points the other way. Dr. Samuel West, one of our leading authorities, says:—

> If phthisis were a contagious malady we should expect to find the clearest proof of it among those who are placed relative with the sick, e.g., among married couples, among nurses and doctors, and among inmates of the same house or institution.

And Ransome also says:—

> That if the simple contagion theory were true, hospitals for consumption should have been, at any rate in the past, centres and hotbeds of

[1] Misconceptions concerning the Riviera, Brit. Med. Jour.
[2] Report of Medical Officer of Local Government Board, 1905, p. 77.

infection, but the universal testimony of physicians to these institutions is that no conveyance of the disease can be traced to any such institution even before the practice of disinfecting the sputum had been carried out.

And Dr. Theodore Williams, as the result of his great experience at the Brompton Hospital, where in former days the ventilation was bad and the sputa were not disinfected, says:—

> We consequently ought to have seen an extension of the disease to non-consumptive cases as well as to the nurses; but nothing of the sort occurred, only the usual results of hospitalism—i.e., erysipelas and sore throat. The evidence of large institutions for the treatment of consumption, such as the Brompton Hospital, directly negatives any idea of consumption being a directly infective disease, like a zymotic fever.

We may therefore dismiss absolutely this mode of introduction into our bodies and ask, What are the other routes? Many people now dread sitting in the same room with a consumptive, and only the other day some young friends of mine were in great tribulation because their parents forbade them from going to private theatricals at a well-known sanatorium, worked upon thoroughly up-to-date principles, for fear of infection. It is satisfactory to note that this popular superstition has been thoroughly shattered by the late Professor Strauss of Paris, who (quoted by Samways) says "that the air expired by a phthisical patient does not contain tubercle bacilli or any other bacilli."

We next come to the sputa. Children as a rule do not expectorate, so we may freely associate with them, and of course we all know that in the earlier stages of consumption and in its fibroid forms at all stages there is no breaking down of lung tissue and therefore nothing to bring up, and even admitting to the full the danger thus spread about by the advanced phthisical sufferers, much may be done to prevent it. In the first place, sputa exposed to the air soon loses its infective properties, and without imitating the drastic methods of New York, where a casual act of expectoration leads to a heavy fine or imprisonment, county councils and various public bodies have passed, and enforce, by-laws which must do much to ensure public safety.

Next, what are we to say about meat and milk? Evidence taken before two Parliamentary committees on which I sat convinced me that the flesh of the tuberculous beast if carefully separated from any adherent glands is probably innocuous, and that if any suspicion hangs about it may be effectually removed by cooking, and I am convinced that the danger from milk is much exaggerated.

Without proclaiming myself an adherent of the Koch heresy, I cannot believe that such a distinguished man, the discoverer of the tubercle bacillus, would have lent his name to such a revolutionary hypothesis unless there was something in it. And evidence to which I paid most careful attention made it quite plain to my mind that milk drawn from a tuberculous cow, in which there was no gross and palpable disease of the udder, cannot infect anyone. But here, again, we may steady our minds in case of suspicion by thorough boiling.

It is alleged that the case against milk depends largely on the undoubted fact that children are very subject to mesenteric disease, but other factors come into play. Auto-infection, on which Dr. West lays so much stress, is responsible for a great deal of mischief among the young, and "scrofulous" tonsils and cervical glands and joints are often the foci from which the bacilli carry out the "flitting" to the lungs with disastrous results. But these again are the outcome of bad feeding and housing and clothing and all the depressing sanitary conditions which so sadly sap many young and promising lives. And this leads me to take up another link in my chain of argument. What other causes are at work besides direct infection to account for the large number of lives annually sacrificed to what is really a preventable disease? Now, in spite of much strong assertion to the contrary, I am convinced, as an old insurance office director, that consumption is really hereditary, and that the family history to which these offices rightly attach so much importance means not only the furnishing of a suitable soil but also the grain to occupy it. And then again, I am perhaps retrograde in holding that a variety of bad hygienic conditions not only encourage, but actually invent or produce, the infective material on which the disease depends.

Let us first hear John Burns:—

> It can be fought by many forces in many ways, led by general well-being, higher wages, cheap and abundant food, better housing, increased sobriety. As pauperism diminishes, consumption declines; as food cheapens, tuberculosis disappears. The cost of food, its abundance and variety, has a great influence on the decline of consumption. Professor Brouardel says the public-house is the purveyor of tuberculosis. In fact, alcoholism is the most potent factor in propagating consumption, and a celebrated French doctor, Professor Bundron, says it is now generally admitted by those who know, that the most potent factor in the spread of consumption is the public-house. The best, simplest, cheapest remedy is to open your windows day and night. Sir William Broadbent shortly before he died came to see me and when he was ill he put his hand on my table and said: "Mr. Burns, if windows were kept open day and night, if many of the simple remedies, some of which I have given you to-day, were carried into effect, consumption might be stamped out in a generation."

Canon Horsley, Mayor of Southwark, in opening an exhibition at the Alexandra Institute, summed up the case in these vigorous words: "Consumption is a disease we made, and a disease we can unmake. It is attributed chiefly to the damnable D's, dirt, damp, drink, and drunkenness." And speaking of damp, let us not forget the classical researches of Dr. Buchanan and Dr. Bowditch which are summed up in these words by the former distinguished authority, "that dampness of soil is a cause of phthisis to the population living upon it."

I think I am now in a position to answer Sir Charles Cameron's query propounded during the debate on a very practical and suggestive paper on notification read by Dr. H. Scurfield of Sheffield.[3] "He would like to know what those who opposed notification proposed, for up to the present he had heard nothing practical from them."

In the first place I should like to express my confidence in the sanatorium treatment as carried out carefully and scientifically at Nordrach-on-Dee and elsewhere. But we must not expect too much from it. In the case of rich patients the result is usually very satisfactory, and if they have attention early enough arrest, if not actual cure, of the disease may be expected—i.e., if, as usually happens, they are in a position to live with a certain amount of precaution and avoid the predisposing causes which we have just considered. Working people will derive benefit from a prolonged series of open-air baths, but they must not expect when they go out to be able to resume their ordinary work all at once.

The case is well put in the sixth annual report of the Nottingham Sanatorium:—

> It has always been pointed out that a stay of three or even six months in a sanatorium cannot do more than arrest or check the disease, which may break out again on return to the previous conditions of life—a most careful life for a period of two years at least is needed before a "cure" can be fairly spoken of. To the rich consumptive this is possible. We want to make it so for the poor.

Next we must put the prevention of spitting and if this is not entirely practicable, the disinfection of the lung products by suitable and convenient methods, and the thorough cooking of meat and boiling of milk in cases of (or even without) suspicion, good feeding, housing, clothing, careful avoidance of damp and overcrowding, strict temperance in drink, and, above all things, freedom from dust and from those occupations which produce it in its most irritating and dangerous forms.

If these golden rules can be followed, and if we agree with Dr. Bulstrode, and where is there a higher authority,[4] that, "as has already been shown by charts representing the behaviour of tuberculosis in England and Wales, there are indications that the disease may, ere many years be passed, become an uncommon, if not rare, malady in this country. It may disappear, as not improbably will have proved to be the case, with typhus fever, relapsing fever, leprosy, and other diseases, which at the present time, so far as this country is concerned, have little other than a historical interest,"—what is the necessity or excuse for subjecting the unhappy victims of this depressing and insidious malady to the tyrannical supervision of superficial authority, and the social and industrial ruin which must inevitably follow? It is, I think, admitted that the attempts to carry out the process voluntarily have failed, and that we must have recourse to "that blessed word compulsion."

As Sir John Byers, no mean authority, has said, "Speaking for himself, he was confident that it would be much better and much simpler to notify all forms of the disease, both medical and surgical." That is to say, if you happen to live in Sheffield and happen to look a little "off colour," to shirk your morning rasher, and cough in the morning and evening, and if the doctor when he is called in finds dulness under one of

[3] THE LANCET, July 16th, 1910, p. 166.
[4] Report of Local Government Board, p. 79.

your clavicles, you are subjected to the following process. Your medical attendant, under a penalty of a fine not exceeding 40s., must report your case to the medical officer of health. An officer of the corporation can then enter your premises between 10 and 6, and forcibly clean and disinfect, and any person obstructing him in the discharge of his duty is liable to a heavy fine or a continuing penalty of 20s. per diem. Books, bedding, clothing, and other domestic articles must be delivered to an officer of the corporation for disinfection, or another penalty of £5 will be imposed.[5]

No doubt steps can be taken, and are taken, to exempt consumptives from the extreme pressure of disability imposed on sufferers from the exanthemata, with which it has no true analogy, but all the same inconvenience and positive discomfort and even danger, when bumbledom is allowed a free hand, must result. Do what we can, murder will out, and the poor consumptive, branded with the mark of Cain, will find himself, in the present exaggerated state of public feeling, shunned like a leper, and almost forced into the ranks of the unemployed by the reluctance of employers to give him work, or of workmen to work with him.[6]

Dr. Jane H. Walker, whose large opportunity of observation gives weight to her words, writes: "I frequently find that employers who are charity itself in paying for clerks or servants, will not take these employees even when I can guarantee them fit for work. I find the greatest reluctance on the part of most shops to employ ex-patients and I can never get help locally for my discharged consumptives." And Dr. M. S. Paterson, medical superintendent of the Brompton Hospital Sanatorium, writes: "The extreme popular views of the contagiousness of consumption with the natural tendency to treat all sufferers as lepers, is unjust, unwarranted, and an economic error." But is not recent legislative and municipal action playing directly down to this stupid and ignorant scare, and driving the consumptive who is perfectly well able to work during the earlier stages of his disease, to be a national burden, because popular superstition and unnecessary tyranny practically compel him to remain idle—and suffering as he is from a depressing disease, and lowered in social comfort by the sad necessity of his life, and compelled to bring what Sir Henry Holland called the influence of "expectant attention" upon his physical condition, can we wonder that he goes down the hill rapidly and leaves without regret a world in which his "lines" have not recently been pleasantly cast?

Then what is the natural result of all this? If anyone begins to suspect an invasion of tubercle the last thing he will think of will be to send for a medical man, who is compelled under legal compulsion to report his case to the authorities. And the worst of the whole business is the difficulty in which it will place the family practitioner, whose natural impulse will be to protect his patient, and who is bound to get into trouble with him if he divulges a secret which may prove his ruin. I do not think it unreasonable to hold the doctor's confidence with those who trust in him to be as inviolate as the secrets of the confessional.

Well, to conclude, I sum up against notification. There is no evidence that it has done any good. Dr. Bulstrode, after a most careful review of the evidence, maintains a judicial balance of opinion. And all the remarkable diminution of phthisis occurred long before it was ever heard of. I quite agree with Dr. Samways, who writes: "The popular persecution of the consumptive, and alarming of the healthy, is a disgrace to civilisation."

The Conference has been held in Edinburgh with some startling results, the chief of which is that, on the authority of Professor Sims Woodhead and others, consumption is apparently a universal disease. To use the words of that eminent authority—"Some asserted that 90 per cent. of those who lived on to 45 had been infected with tuberculosis. He believed the proportion was even higher, and that in all probability tubercle bacilli found a foothold at some period of life in almost everybody." This is an alarming statement, and the logical outcome of it is, if the notifiers have their way, that the entire population must be reported by their medical attendants to the local authority, they must stand among the dreary ranks of the unemployed or shiver out their lives in chilly sanatoriums or wait patiently in a hospital until released by friendly death. Some one has well said that it is far more important to prevent consumption than to cure it, and the admirable work of Dr. R. W. Philip and the Countess of Aberdeen shows what can be done by skilled energy working on common-sense lines. Her Excellency told the Conference that in Ireland in the last two years there had been a decrease of 1085 deaths from tuberculosis. I do not follow that notification had anything to do with this, or with the equally good results obtained in Edinburgh, but the rigid enforcement of admirable hygienic precautions, the better housing and feeding and clothing of the people, and the avoidance so far as possible of the depressing but avoidable result of poverty have been the main factors in this remarkable improvement in public health. These lowering factors are conditions which I believe breed consumption, and the bacilli, *perhaps*, are the outcome and not the cause of the disease. If we are all consumptive our best friends are our phagocytes, which make relentless war against infective intruders, and we must keep them in good fighting trim by maintaining our own constitutional vigour, and through their exertions and our own we shall be able to keep the foe at bay.

Porchester-gardens, W.

[5] Sheffield Corporation Act of 1903.
[6] Report of Local Government Board.

A CASE OF DERMATO-MYOSITIS WHICH RECOVERED.

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AND
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DERMATO-MYOSITIS is so rare a disease that every case requires to be reported. Only about 30 examples are to be found in the literature. The case here published seems a fairly typical one, but presents no new features and, unhappily, affords no fresh clue to the etiology. Dermato-myositis was first described in 1887 by Wagner of Leipsic and Hepp at Strasburg. Its causation is unknown; its course acute, subacute, or chronic; its chief clinical resemblance to trichiniasis; its prognosis grave—17 out of 28 patients dying; its treatment undetermined.

The patient, an officer in the Indian army, aged 50 years, of good physique and active habits, a keen sportsman, had enjoyed excellent health up to 1907. He then began to complain of "heartburn" and a constantly coated tongue. He was an excessive smoker. His face, he says, became flushed at times and he had pains in his left shoulder and arm; he thought the arm had become smaller and used to talk of "his withered arm." But this diminution in size seems to have been slight. In May, 1909, he returned to England from India, and in July, as his "indigestion" had grown more troublesome, he was put on "sour milk treatment" and an alkaline antiseptic mixture, the excessive smoking being at the same time stopped.

In August the patient went to Teignmouth to fish, and on the 10th he had stiffness and pain about the left ankle when walking. On the 11th both ankles were painful and the pain and stiffness had spread up the legs, the shins becoming tender. He put this down to rheumatism. On the 16th he came to Okehampton, where his wife met him at the station and noticed his difficulty in walking. On the same day Dr. Gwynn of Belstone, Okehampton, saw him and found him scarcely able to walk, with weakness of both ankles and wrists and some degree of foot-drop and wrist-drop, yet with increased knee-jerks; the fingers were flexed on the palms and felt "numb and tingling," especially the little and ring fingers; the ankles were painful, especially the left, and his sleep, he said, was disturbed by painful spasms of the feet and "fidgets," with acute pain in the left instep as if a knife were being run into the foot. He had no anæsthesia nor any weakness of bladder or rectum. There was no history of syphilis, alcohol, mineral poisoning of any sort, influenza, or of the ingestion of shell-fish, pork, or sausages. The condition, except for the increased reflexes, might rather have suggested a multiple neuritis. He was put to bed, on light diet, and was given a mixture of iodide of potassium and sodium salicylate.

On August 31st an enlarged spleen could be made out. The legs, which had been swollen and feeble, had decreased in size and had considerably recovered their power. There was a line of marked tenderness on the left leg in front of

the ankle and over the arch of the foot, near the position of the external division of the peroneal nerve. The arms had begun to swell and to get feeble, as the legs had done before them; they were red, swollen, and tender to above the elbows, the fingers bent on the palms owing to the combined swelling and weakness. The trunk muscles were apparently unaffected, respiration was unimpeded, and the action of the heart was good. The abdomen was slightly distended and tympanitic. There was no anæsthesia, no interference with the function of bladder or rectum, no optic neuritis, no tenderness or irregularity of the spinal column. The temperature was a little over 99° F. each night, and usually about normal in the morning.

The swelling and tenderness of the arms gradually increased, and by the third week in September both arms and hands had become very swollen, tense, and painful, with marked limitation of movement. Profuse perspiration was complained of over the backs of the hands and on the face. The legs remained weak, the patient having some difficulty in raising them from the bed. Slight œdema was now noticeable over the upper part of the chest in front, the skin being dusky red. Dusky red areas also appeared over the scapular regions behind. The pectoral and deltoid muscles were tender. The tongue had become very coated, though food was well taken. Hot arm baths and fomentations with glycerine and belladonna relieved the pains in the arms. Sleep was very broken by restlessness, "fidgets," and pain in the legs. Veronal was given and it proved useful. On Sept. 23rd, 24th, and 25th the patient's temperature rose to 103° with rigors and profuse sweats. It then fell to its previous level, where it remained. On the 30th the blood was examined and showed nothing noteworthy except a slight eosinophilia of 4·4 per cent. The fæces were examined for signs of trichinæ, but none were discovered.

By the second week in October the swelling of the arms and hands had diminished. The backs of both pitted on pressure. Both grasps were weak and there was marked tremor of the hands. The legs had again swollen, pitting on pressure over the feet, tibial muscles, and the insides of the thighs. The trunk muscles had now also become weak and the patient could no longer raise himself. The face, too, had begun to swell and was fiery red with a blotchy erythema. By the third week of October the face was so swollen as to be unrecognisable. The eyes were closed and the conjunctivæ were injected. The tongue was very coated, the breath foul, and ulcers were present on the gums and inside the cheeks. Profuse salivation was present and had become very distressing, preventing sleep; the parotids were swollen, tender, and painful. The condition of the mouth allowed of nothing but liquid food being taken. There was also considerable laryngeal irritation with a weak, hoarse, falsetto voice, and constant hawking of blood-stained mucus. The laryngoscope, however, showed the vocal cords to be free from inflammation. The patient had difficulty in opening his mouth. He was greatly depressed. Vomiting occurred occasionally.

Atropine and morphia relieved the salivation and pain, the parotids were fomented, a chlorate of potash mouth-wash was ordered, and cyllin, quinine, strychnine, and β-naphthol were administered after Nov. 2nd. On the 16th the arms were almost free from œdema, and now appeared much wasted. The triceps were especially atrophied. The biceps felt hard, nodular, and tender. There were subcutaneous nodules, dusky red and tender, rather like those of erythema nodosum, at the back of the elbow, behind the knees, over the left biceps, and in the right axilla. Nodules could also be felt in some of the tendons. The legs were less swollen, but some œdema persisted over the anterior tibial muscles and inside the thighs. There was slight effusion in the right knee-joint. The œdema of the chest wall had disappeared, but the skin was still stained purplish, and bruise-like stains appeared in patches over the biceps, deltoid, and gluteal muscles, behind the knees, inside the thighs, and over the gastrocnemius. Salivation had almost ceased, the tongue was cleaner, and the voice was stronger. The face was also less swollen. The patient slept better.

On Dec. 10th the œdema had quite left the arms and was much less in the legs and face. The tongue was much cleaner and the voice had become normal again. The arms were greatly wasted and the thenar and hypothenar eminences were flattened. Painful sores had formed between the fingers of the left hand. There was some numbness of the fingers. Massage was cautiously begun. A previous attempt had seemed to cause a slight return of the myositis, but now no such result followed. On the 25th improvement was definitely proceeding in all respects. The face, however, remained very red.

On Jan. 12th, 1910, as progress, though steady, seemed extremely slow, the blood was examined at our request by Dr. R. V. Solly of Exeter, but no micro-organisms could be discovered in it. On the 30th the patient was well enough to walk into his sitting-room, to feed and to dress himself, and to write. He could rise from his chair with only slight help. The face was still red, but all swelling had gone from it. The muscles of the thigh remained hard.

Improvement became so great that we were able to permit the patient's removal to a home on the South Coast. On May 7th we heard that recovery was proceeding uninterruptedly and that the patient could now walk up and down stairs and go short distances on the level with occasional rests. The redness of the face, however, persisted.

With regard to the diagnosis, no reasonable doubt of it seems possible; the onset, course, and grouping of symptoms did not suggest trichiniasis, there was no ascertainable source for that disease, and the absence of considerable eosinophilia as well as of evidence of trichinæ in the stools were against it. As is usual in dermato-myositis, no culture could be made from the blood, and the case throws no light on the etiology of the complaint.

How far treatment determined recovery is difficult to say with certainty. Individual symptoms were undoubtedly relieved by the measures we have indicated. The clinical picture suggested a toxæmia arising from some infection of the alimentary canal, and our efforts were therefore directed to disinfection of the mouth, throat, stomach, and bowels. In the mouth there can be no doubt the remedies employed were of great use, and so it is not unreasonable to believe that the disinfectants applied to the rest of the alimentary canal were also of value. Their diligent use was at least followed by marked general improvement and ultimate recovery from an extremely grave condition. Should we ever meet with a similar case we would undoubtedly adopt the same treatment.

Exeter.

AN EXAMINATION OF THE BLOOD SERUM OF IDIOTS BY THE WASSERMANN REACTION.

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THE examination of the blood serum of idiots by the Wassermann reaction has been the subject of several papers. Raviart, Breton, Petit, Gayet, and Cannac[1] examined 246 cases, of which 76 were found to give a positive reaction. Kellner, Clemenz, Bruckner, and Rautenberg[2] examined 216 cases, of which 13 gave a positive reaction by Stern's method, and 9 gave a positive reaction by the original Wassermann method. To the 13 cases must be added 3 cases which were deficient in complement, and were found to be positive by the original method. H. Lippmann,[3] working in Wassermann's laboratory, examined 78 cases at Uchtspring, and obtained a positive reaction in 7 cases—that is to say, 9 per cent. An examination of the cases at the Dalldorf Asylum gave a result of 13·2 per cent. Lippmann also examined 77 cases by clinical methods, and decided that 40·2 per cent. showed signs of congenital syphilis.

At the suggestion of Professor Wassermann I investigated the inmates of the Wilhelmstift, an asylum for idiots at Potsdam. The inmates were all children or young adults, and the majority were cases of simple idiocy or imbecility. The method was as follows: 1. All the cases were examined for evidence of congenital syphilis. 2. A sample of blood was taken from the arm vein and tested by the Wassermann reaction. 3. Subsequently the cases which had given a positive reaction were submitted to a further clinical examination.

The serum test was carried out strictly in accordance with

the original method, and watery extract of congenital syphilitic liver was used as antigen in all cases. The extracts and the hæmolytic system were carefully standardised by titration, and in the actual test adequate controls from well-authenticated cases were invariably employed. No test was considered positive where more than the slightest trace of hæmolysis could be detected.

In all 330 cases were examined, of which 51 gave a positive reaction—that is to say, 15·4 per cent. Among the 51 cases which gave a positive serum reaction, 7 were found which had definite signs of syphilis and 3 or 4 in which syphilis might have been suspected, but not with certainty diagnosed. In addition, there were 2 cases with definite signs which gave a negative reaction. That is to say, among the 330 patients were 9, or, including the doubtful cases, 13, which from physical signs and symptoms would have justified the diagnosis of syphilis.

The results in detail were as follows:—

	Cases examined.	Positive.
Simple idiocy of all grades	287	44
Congenital spastic diplegia (Little's disease)	15	1
Marked hydrocephalus	14	4
Epilepsy	1	1
Microcephalic cases	4	0
Mongols	1	0
Deaf and dumb	7	1
Progressive muscular dystrophy, with mental symptoms	1	0

All the cases which gave a positive serum reaction were subsequently very carefully examined with the object (1) of discovering any sign of syphilis which had been previously overlooked; and (2) of detecting any symptom or group of symptoms common to all the positive cases.

Of the positive cases, 1 was subject to epileptiform convulsions and showed slight choreic movements, 1 had strabismus and nystagmus, 1 had a right-sided hemiplegia, 1 had spastic diplegia and conformed to the type of Little's disease, 1 was a deaf-mute, and 2 were aphasic. Among the remaining cases I was unable to detect any evidence of a local lesion.

An examination was made of the cerebro-spinal fluid from 12 cases which had given a positive serum reaction. In only one case was a positive reaction obtained.

I also obtained for examination specimens of serum of the parents of ten of the positive cases. The results were as follows:—

Age of patient.	Result of examination of parents' serum.	Age of patient.	Result of examination of parents' serum.
9	Father positive. Mother ,,	11	Father negative.
15	Mother ,,	16	Father positive.
11	Father ,, Mother ,,	12	Father negative.
11	Father ,,	9	Father ,, Mother ,,
13	Mother ,,	14	Mother positive.

Thus among 13 parents 9 were found to give a positive reaction. It will be noticed in the above table that in the case of one patient a positive reaction was obtained at an interval of 15, and in another case at an interval of 16 years after the birth of a syphilitic child.

The period during which a positive reaction may be obtained is known to be extremely variable in the case of the acquired form of the disease. In the congenital form it might be expected that the percentage of positive results would bear a close relation to the age of the patients examined. A grouping of the 330 cases according to age gives the following result:—

	Examined.	Positive results.
1. Patients of ten years and under* ...	94	20 = 21·27%
2. Patients from 11 up to 15 years of age inclusive	142	24 = 16·9%
3. Patients from 16 to 20 years of age	66	4 = 6·06%

* Of these 2 only were less than 5 years old.

Of patients from 21 to 30 years, 24 were examined with three positive results. The remaining eight patients ranged in age from 31 to 44 and all eight gave a negative reaction.

The above table appears to show that the percentage of positive results diminishes rapidly after the sixteenth year, and that a larger percentage of positive results might be expected from the examination of a series of very young cases. In any case, the average age of the patients investigated must be regarded as an important factor in any estimation of the prevalence of congenital syphilis, and it seems to me possible that the very contradictory results already published may be reconciled by taking the age factor into consideration.

Of the 51 cases in which a positive serum reaction was obtained 7 only showed conclusive evidence of congenital syphilis from a clinical standpoint. In the remaining 44 cases a diagnosis of syphilis rested entirely on the evidence of the serum test.

At the present time it is, I think, generally admitted that a positive result obtained by the Wassermann reaction affords strong evidence of a syphilitic infection, and it is superfluous for me to cite evidence in support of its reliability. The practical value of the test must necessarily be measured by the number of those cases in which the positive serum reaction is the only obtainable sign of a syphilitic infection. In cases where latent syphilis is suspected the value of a positive result has been established beyond all reasonable doubt. In this connexion great interest has been aroused by the cases reported by Plaut and others in which the husband or wife of a syphilitic has been shown to give a positive reaction, but has never shown any sign or symptom of the disease. It is even held that the serum reaction may be the only sign from first to last of a syphilitic infection.

Linser,[4] quoted by Bruck, has examined a series of children of syphilitic patients and finds that two-thirds give a positive serum reaction, while only one-third show any other sign of infection. Numerous cases are also on record in which it has been demonstrated that the apparently healthy mothers of syphilitic children give a positive reaction, and conversely the serum test has been positive in apparently healthy children of syphilitic mothers. The numerous investigations on these lines tend to prove that the evidence of a positive serum reaction may be accepted even in the absence of the usual signs and symptoms of the disease.

If, however, it is granted that the 51 cases of this series were the subjects of congenital syphilis, or at least the children of syphilitic parents, it still remains open to question whether there is any evidence of a causal relation between syphilis and idiocy. It might very reasonably be held that the two conditions were unconnected or that syphilis effected a very remote influence, as a predisposing cause, by in some way impairing the vitality of the parent or offspring. It can also be maintained that a syphilitic taint is to be expected among the children of parents whose mental and moral faculties are presumably below the average level.

I had hoped that, by a careful examination of those cases which had given a positive result to the serum test, it might be possible to detect some symptom, or group of symptoms, which was common to all. This I failed to do. Very few of the positive cases showed any evidence of a gross lesion in the central nervous system, and this, I think, is quite in accordance with what one might expect, for the gross changes in the brain which are known to be due to congenital syphilis are not compatible, as a rule, with a continuance of life. If a causal relation exists between congenital syphilis and idiocy the condition which arises may perhaps be classed as parasyphilitic.

The absence of the ordinary signs of congenital syphilis in idiocy is closely paralleled in the already authenticated parasyphilitic diseases. It is, of course, notorious that tabes and general paralysis commonly occur in patients where the early symptoms of syphilis have been mild or even unnoticed. Among the cases of the juvenile form of general paralysis collected by Mott[6] quite half were found to show no sign of congenital syphilis, but nevertheless to have been born of syphilitic parents and to have brothers and sisters who exhibited the ordinary signs of the disease.

It seems to me reasonable to think that many cases of idiocy should be classed with that form of syphilis which manifests itself alone by a selective toxic action on the elements of the central nervous system. I do not wish to attach an exaggerated importance to the results of the examination of the serum in one series of cases, but when it can be shown that a considerable percentage of idiots afford evidence of a syphilitic infection, and since it is well known that the virus of syphilis is capable of exercising a selective action on the central nervous system in cases in which there

is no other evidence of the disease, I think it is not unreasonable to infer a causal relation between the two conditions.

From the therapeutical standpoint it is hardly, I think, to be expected that any improvement will be obtained by the mercurial treatment of cases of established idiocy which give a positive Wassermann reaction. On the other hand, it does not seem unreasonable to suggest that the information which can be gained from the Wassermann reaction should be made of use as part of a system of prophylactic treatment. It should not be impracticable, or even very difficult, to secure a specimen of the blood serum of any woman during pregnancy in cases where any suspicion of syphilis might be entertained. If a positive reaction was obtained it can hardly be doubted that the active treatment of the mother followed later by treatment of the infant would be the means of averting or modifying the occurrence of symptoms. It has been even suggested by Professor Wassermann that a routine examination should be undertaken of the blood serum of every patient who is admitted to a lying-in hospital. The proposal is the logical result of the belief that a syphilitic infection may exist in an apparently healthy subject and that a reliable diagnosis can be obtained by the employment of the Wassermann reaction.

In conclusion, I have pleasure in expressing my gratitude to Professor Wassermann for the kind interest which he took in these experiments. My best thanks are also due to the director and medical officers of the Wilhelmstift Asylum in Potsdam for their kindness in assisting me in collecting samples of serum and in the examination of the patients.

Bibliography.—1. Raviart, Breton, Petit, Gayet, and Cannac: Revue de Médecine, vol. xxviii., No. 9. 2. Kellner, Clemenz, Bruckner, and Rautenberg: Wassermannsche Reaktion bei Idiotie, Deutsche Medizinische Wochenschrift, October, 1909, vol. xxxv., No. 42, p. 1827. 3. Lippmann, H.: Ueber den Zusammenhang von Idiotie und Syphilis, Münchener Medizinische Wochenschrift, 1909, vol. lvi., No. 47, p. 2416. 4. Linser (quoted by Bruck): Aerztlicher Verein, Tübingen, Feb. 8th, 1909; Ref. Münchener Medizinische Wochenschrift, 1909, No. 13. 5. Bruck: Die Serodiagnose der Syphilis, Berlin, 1909. 6. Mott: Archives of Neurology and Psychiatry, 1909, vol. iv.

THE MEDICAL PROPOSALS OF THE MINORITY REPORT: AN APPEAL TO THE MEDICAL PROFESSION.

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No well-informed section of the community can be blind to the fact that far-reaching changes in our whole system of local government are inevitable. Mr. Balfour's suggestion in his Election Address (January, 1910) that the machinery of the Poor-law must be "scrapped"; the Prime Minister's arresting interrogation at Bletchley (August, 1909), "Can any person doubt that the advent of old-age pensions is but the first step in the breaking up of our old Poor-law system?"—these are the conclusions to which our most responsible statesmen are driven by the Report of the Royal Commission upon the Poor-laws.

Without insisting for the moment on any particular changes, we would emphasise as forcibly as possible the fact that some change is inevitable. Upon that point there is no division of opinion either among the Commissioners or in the world outside. We suggest that the medical profession as a whole has not sufficiently grasped this fact, and that unless it faces the situation, shapes a policy, and fights for its own interests it is liable to be sacrificed to political considerations.

Mr. Balfour's appointment of the Poor-law Commission in 1905 was nothing but the tardy recognition of the fact that a new spirit had crept over our methods of treating the destitute, and that the Poor-law machinery, which was efficient enough for 1834, had become rusty and useless, if not positively dangerous, by 1905.

In 1834 we set up one authority, and one only, to deal with all classes of the destitute. Since then, under the promptings of a more enlightened conscience, we have set up various other authorities to attend to various classes of our population who were destitute, not of the necessaries of life, but of health, or knowledge, or mental capacity, or of employment. Meanwhile the old Poor-law has remained, and that also has continued to deal with large sections of these same destitute people. There has never been any attempt to regulate harmoniously the workings of these different authorities, and the result to-day is a confusion and muddle and waste that have become intolerable.

The Minority Commissioners, when they speak of "breaking up the Poor-law," are not inspired by any violent desire to demolish an old and honourable institution. They would, indeed, do better to speak of "completing the break-up of the Poor-law." Their scheme is merely the logical outcome of the evolution of our methods of dealing with the poorer classes of the community. Large sections of the sick are already being dealt with by the public health authorities; surely it would be wise to draw out from the Poor-law the remnant of the sick people and give them to the newer agencies that are specially equipped for such work. Similarly, it would be wisdom to draw out all the children from the Poor-law and hand them over to the education authorities that are specially fitted to deal with children. The Majority Commissioners themselves admit that the feeble-minded should be taken from the Poor-law and given over to the authorities specially constituted to deal with feeble-mindedness. The aged are already getting their pensions—not from the relieving officer but from the post-office. The Minority scheme would merely complete this process and transfer those remnants still left in the Poor-law to the appropriate authorities.

These proposals were debated in the House of Commons on April 8th of the present year, and to the astonishment of the man in the street the Prime Minister and the Leader of the Opposition both showed considerable sympathy with the efforts and proposals of the Minority Commissioners. It is fast becoming the general feeling that something like the Minority Report will sooner or later become the law of the country. The debate served to re-emphasise the urgency and the certainty of far-reaching changes.

That public health legislation will probably be laid down upon the lines of the Minority Report is made the more certain by the general disfavour shown to the medical proposals of the Majority. It is impossible here to criticise these in detail. A pamphlet entitled "The Poor-Law Report and the Medical Profession" (Fifield and Co.) contains a convincing attack on the Majority proposals from the private practitioner's point of view. It will be almost sufficient to quote the dissenting report of Sir Arthur Downes, himself one of the Majority Commissioners, and the only doctor on the Commission. He says: "The scheme set out in the report appears to me to offer what amounts to a large measure of free medical relief without adequate safeguard either to the medical profession generally or to the ratepayer."

In practice the scheme of the Majority would mean a vast extension of provident work under the control of local philanthropists, without any safeguard whatever to the private practitioner. The position of the average doctor is often hard enough now. It would become unbearable under a scheme of this kind. Fortunately there is not the remotest likelihood of any statesman venturing to turn these proposals into law. The question is, therefore, what other shape will the inevitable changes take. No medical man who has practised in our poorer districts can fail to see that some change ought to be made in our present confused methods of looking after the health of the poor. To-day we have at least two distinct authorities engaged upon this work, without any intelligent coördination. At one time the Poor-law authority was the only local body existing that could deal with the work of public health administration. It still has under its control infirmaries all over the country where all manner of sickness is treated. It is the authority responsible for the enforcement of the Vaccination Acts. It provides maternity wards for expectant mothers and nurseries for infants whose parents are dead or unable to provide them a home. It is the asylum of the incapacitated worker and of the helpless aged. All over the country the Poor-law authorities are doing a large amount of medical work, sometimes with conspicuous success, more often with dismal failure.

Meanwhile, alongside of this service has grown up the Public Health Service, with its ever-growing encroachment on the sphere of the Poor-law. It is a mistake to think that

this Public Health Service is in any way confined to sanitation and general preventive administration. It has 700 municipal hospitals, some of them with out-patient departments, and dispensaries and large staffs of health visitors; it is beginning to organise domiciliary nursing, "schools for mothers," "milk clinics," and to supervise midwives; it is being entrusted with the medical inspection and treatment of school children; it is taking over one disease after another from the Poor-law with the consent and encouragement of the legislature. Even hospitals for accidents have been instituted by this same authority in some parts of the country. So that this service is, to sum up, nearly as costly and just as ubiquitous as that of the Poor-law.

Some mode of unification or coöperation must be found. The Majority proposals of a gigantic scheme of provident dispensaries have won no support. The plan of Sir Arthur Downes, the dissenting Majority Commissioner, to unify the service by thrusting back all medical relief into the Poor-law is not practical politics at a time when the Poor-law has been condemned by all political parties. The Minority propose the alternative of unifying the whole service by entrusting to the public health authorities the medical work now done under the Poor-law. Surely this is the obvious, sane, logical policy. Dr. McVail, who was specially appointed by the Commission to investigate the subject, decided that there was no other feasible solution. Every one of the responsible heads of the departments concerned—the chief medical officer of the Local Government Board for England and Wales, the medical member of the Local Government Board for Scotland, the medical Commissioner of the Local Government Board for Ireland, and the medical officer of the Board of Education—agree with these proposals, or to speak more accurately, pressed this conclusion upon the Commission.

The advantages of the scheme are patent. It means, to begin with, simplicity of administration, and therefore effective administration. One body and one only will be in charge of the Public Health Service in each locality, and therefore efficient organisation will be just as possible as to-day, with conflicting jurisdictions, it is impossible. The result will be that the problem of building up the health of the community will be undertaken with a new and firmer grasp. But greater still will be the advantage of inspiring the whole of our medical service with the traditions and principles that dominate our public health administration. The Poor-law is by the law of its own nature deterrent. Its work is not to build up health, but rather to prevent the destitute from dying. The business of the public health authority, on the other hand, is to make men and women healthy; to prevent disease; to disseminate the principles of health. The existence of a large section of very poor and very unhealthy people is a serious danger to the community and a disgraceful waste of valuable brain and muscle. These human failures can only be converted into successes by an authority whose one business is health.

The economy which this scheme will effect should also appeal to the medical man as a ratepayer. At the present time we are wasting public money, wasting it with our eyes wide open, by maintaining two costly and co-extensive medical services. The unified service, taking over the buildings and offices of the superseded bodies, will be enabled to effect economies that the older system made impossible. There will be far more specialism, unity of administration, and simplification of machinery. If the ministrations of the Public Health Service tend to increase in the future, this will be due to the inevitable tendencies of our social development. Those tendencies will manifest themselves far more inimically and far more expensively if we continue our present dual system.

The medical proposals of the Minority Report have gained a wealth of enthusiastic and intelligent support among all classes of the community. The medical profession, however, is still in doubt. So, putting aside all considerations of public spirit, let us examine the naked question—How will these proposals affect the ordinary medical man? What the profession fears is that the State will rob its members of the reward of long and thankless years of study by taking from them a large number of their poorer patients, and so making intolerable the present hard struggle for a living. This danger was carefully considered by the Minority Commissioners in drawing up their scheme. They were acute enough to recognise the futility of framing any scheme of reform which would enlist against them the hostility of the medical profession. It is their boast that their solution will conserve the interests of the medical profession far more effectively than does the present system. We believe that the more carefully the Minority proposals are scrutinised the more will they commend themselves to the profession as the only satisfactory path of emergence from the present chaos.

It is of grave consequence to us as a body that this awakening should come fast. Parliament does not always act with a conscience. Its measures cannot fail to bear the stamp of external pressure. What the medical profession needs now is to understand clearly that change must come, and then formulate a precise and practicable plan of campaign. Politico-philanthropic motives will prove its ending unless it takes means to ensure its own safety. Just, if not generous, treatment at the hands of the State is contingent upon the sanity and coöperation of the profession as a whole during the next few years.

The Minority propose that the area for public health purposes should in future be the county or county borough, and all such work be under the general control of the health committee of the Council. At the head of the medical staff would be a county medical officer (not necessarily a sanitarian), whose work would be almost entirely administrative. Under his direction there would probably be four coördinate services: 1. The medical officers of health attending to the sanitary needs of the district. 2. The district medical officers giving domiciliary treatment. 3. The superintendents of institutions (infirmaries, infectious and isolation hospitals, &c.). 4. The school medical staff. Such a service, unified and organised, will give adequate treatment for all those who need it, enforce sanitary requirements, and save our children from the stunting and stultification that result from the early neglect of minor ailments. It will do this if the State is wise enough to pay its servants adequately. The medical profession can, if it likes, demand a fair return for the invaluable work that a large number of its members will be called upon to do under these new conditions. The county medical officer, at the head of the service, should receive not less than £1000. The salaries of the other officers would range from £250 to £600. Well-paid work is nearly always good work, and if this scheme of medical reform is to be of any permanent value to us as a community the Minority recognise the importance of paying sufficient salaries to attract the best men. But it will depend on the energy and loyalty of the profession to see to it that Parliament and the local bodies enforce this principle. It may be added that the tenure of all officers will be permanent, dismissal being subject to the consent of the central authority, which to crown the scheme should be a Board of Health. An automatic system of pensions is, of course, part of the plan of reform.

Another feature of the scheme that will add considerably to its attractiveness in the eyes of medical men is that it will give those employed by the State a far greater freedom than they enjoy to-day, and an infinitely greater freedom than they would enjoy under any provident dispensary scheme. The State medical officer will be liable to dismissal only upon gross neglect of his duties. He will be free to talk plainly to his patients—a thing the club doctor dare not do. He will not be harassed by a hundred financial and social considerations that are utterly irrelevant to his work. Under the scheme proposed by the Minority the State medical officer will be free of every consideration except the health of his patients. There is not the slightest justification for the belief that State employment, at any rate for a medical man, will mean any crushing of his individuality. It will set him free to think and act in a way often impossible in a private practice.

It is important to make it clear that all medical men who become civil servants will benefit as we have described, for already a very large proportion of the medical profession, about one-third, is under the direct employment of the State, and it may reasonably be anticipated that the proportion will be still greater under the Minority scheme. For the purpose of the Minority is the prevention of destitution, and this means a searching and systematic campaign against the sickness and insanitary conditions that are responsible for half the destitution of to-day. This sickness and these insanitary conditions are at the present time largely untreated. The

private practitioner, except out of sheer charity or incidentally in the building of his practice, makes no attempt to cope with these evils. The efforts of the Local Government Board and of local bodies are usually of a rather superficial character. The Minority propose for every district a more adequate staff, a better paid, and therefore a more efficient, staff.

It is certain, also, that before long it will be recognised as preferable to overworking three practitioners to employ four, and to give each only that amount of work that he can do efficiently. In the last fifty years this nation has developed a conscience for health. That conscience becomes more sensitive day by day, and nothing is more sure in our social evolution than that more and more importance will be attached to measures for the prevention and cure of sickness of every sort. Before long it will dawn on us as a people that health is more important than education. For our particular purpose we are urging this point because it means that more and more medical men will be invited into State employ, and we believe that the medical profession can see to it that such a transference will not be in any way unwelcome to the average practitioner. But this shifting will also be very welcome to the doctor who does not enter the State service, either because he does not care for it or because he is not given the opportunity. The reason is plain. If more medical men are taken on by the State to deal, not with the old work but with new work made necessary by our new social outlook, there will be fewer practitioners left in private practice, and there will be more breathing space in one of the most crowded of English professions. The State will certainly want more medical men; these will deal with patients untouched to-day by the ordinary practitioner. Thus the same amount of practice in the aggregate will be left to a smaller number of private practitioners. This conclusion is confirmed by the undoubted fact that under the new *régime* a vast amount of untreated and almost unknown disease and sickness among the very poor will be brought to light. No doctor who knows how much superficial and unsatisfactory work is done in the out-patients' department of hospitals and dispensaries would hesitate to affirm that far more might be done for the poor than is done at present.

The experience of the school clinics set up at Bradford strikingly supports this view. Before the clinics were started only 11 per cent. of those children found by inspection with defective vision underwent treatment. Now it is 100 per cent. If we may draw inferences from this particular example, confirmed, indeed, by many others of a similar nature, it is certain that a great mass of ill-health of every sort among our destitute population would be brought to light by an efficient medical service. Reforms of this nature would entail upon our public health authorities a considerable additional burden of work, and they would need more doctors to cope with it. We are not making any fanciful statements when we declare that under the Minority proposals there would be more for the State to do and more for the private practitioner also.

The private practitioner would before long benefit in yet another manner. It is known that a good third of all our destitution is directly caused by sickness. A very large proportion of it is caused also by neglected infancy. These causes are tangible and traceable. Who can say how much more of our destitution is facilitated by the subtle, invisible undermining of strength and capacity that results from dirty and insanitary environment and neglect of the elementary principles of health in our slums? Mrs. Webb has said that a public-house stands at the side of every road that slopes down to the morass of destitution. In the same way it is true that ill-health is a contributory factor to many cases of moral or economic decline. More than half a million of those who come on the rates every year are driven there by sickness, and many of the other one and a half million might have been saved from the Poor-law had sufficient attention been paid to their bodily health. Remove the cause and you remove the effect. Put an end to the considerable portion of this sickness which is preventable and you replace a large number of ineffective parasitic people by wealth-producing wage-earning citizens. The faith of the Minority Commissioners, well grounded upon the most expert medical and sociological research, is that this transformation can in course of time be made. For the medical profession this means that a great number of men, women, and children who are now non-paying patients will be put into a position of economic independence and turn to their own private doctor for medical assistance. There is every reason to suppose that the work of our public health authorities, which will be mainly directed to the elimination of insanitary and unhealthy factors in the lives of the very poor, will build up a class of self-reliant men and women who will go to their own medical attendant for the medical assistance which is needed at times even by the strongest.

One thing, and one only, can militate against this view of the private practitioner's future, and that is the danger of a too attractive State service. This is the crux of the whole question. This is the point upon which the success or failure of the proposals must turn. If there is to be a gratuitous State service, or one without any but nominal charges, then the medical profession must have nothing more to say to the Minority proposals. Such a service would mean that on both sides the pockets of private practitioners were picked. They would be robbed of their livelihood because great numbers of their patients would turn to the State for assistance. They would be robbed in rates and taxes for the ever-increasing expenditure upon this socialistic service. If the Minority cannot make clear their case upon this point, that such will not be the result of their scheme, they cannot expect any support from a profession already hard hit by a hundred gratuitous agencies.

It is the deliberate intention of the Minority to confine the ministrations of the public health authorities, so far as these are gratuitous, to those who cannot afford to pay. The Minority proposals, the whole of the active crusade now being conducted by the Minority Commissioners, is against *destitution*, and their field of vision is circumscribed by that word. They do not desire to withdraw a single patient from the practice of any private practitioner. The Public Health Authorities will, of course, attend to sanitation, &c., as heretofore, and school children will be inspected and treatment enforced. But they will confine their *assistance* to those destitute people whose health is to-day either neglected or imperfectly looked after by the State and voluntary agencies.

Those very poor patients who come to most private practitioners at present are exceedingly few in number and not a desirable addition to their *clientèle*. If the practitioner treats them and accepts a fee, he feels that he is robbing them of the necessaries of life. If he refuses to treat them, he often feels that he is acting inhumanely. The average doctor would be glad to get rid of such patients, and to get rid also of the feeling that if he does not treat them there is no properly constituted authority who will. We have been at pains to confirm this statement by obtaining particulars from a number of medical men practising in the East End of London. One writes from Bermondsey: "I do not think that more than 5 per cent. of my patients have an income of less than 22*s.* per week for family of five. These we would be very gladly rid of, for we can do nothing for them because they are so poor and their conditions of life are so bad." Another practitioner with a 6*d.* and 1*s.* practice in Stepney informs us that less than 8 per cent. of his patients earn under 22*s.* per week per family.

What the reader may question is the practicability of this proposal to confine State assistance to the destitute. This is the attitude taken up by most of the critics of the Minority. ...y urge that gratuitous State assistance for the very poor ...ill widen into a gratuitous assistance for the whole populace. As the *Times* of March 16th, 1910, put it: "If you offer people relief ..... without any drawback, it is absolutely certain that many will take advantage of it, and that more and more will follow."

The problem is, therefore, to confine free medical assistance to that section of the community which without it would go untreated. To-day, be it noted, there is no such restriction. While a vast amount of sickness goes unnoticed except by the sufferers, there is a great mass of free medical assistance rendered to applicants who could well afford to pay for it.

The widespread abuse of our voluntary hospitals is almost equalled by the abuse of the institutions set up by the State. The ratepayer is heavily taxed for the thousands upon thousands of well-to-do patients who every year crowd to the State hospitals for which he pays, and who generally, with the deliberate encouragement of the legislature or the local authority, refuse to pay a penny for their treatment.

As far as the metropolis is concerned, Parliament has sanctioned this position by expressly omitting from its Public Health (London) Act of 1891 all provision for making any charge for hospital treatment. Sir Francis Burdett in his pamphlet on "The Future of the Hospitals" summed up the matter by saying: "As at present constituted the health authorities are the only authorities who have never recovered anything from the person to whom they have rendered service, or, in any case, the recoveries have been so small as to be virtually inappreciable." Witness after witness before the Royal Commission drew attention to the abuse of State and voluntary medical aid. Here are a few quotations taken almost at random from the evidence before the Commissioners: "The dispensary charity here is much abused to the detriment of the medical profession. In a minor way the hospital, too, is much abused. Many of the working-classes crowd to the dispensary daily and receive gratuitous attendance who could well afford to pay fees or club payments to a general practitioner."[1] The organising secretary to the Newcastle Charity Organisation Society stated: "We found that only a small percentage of those whose names had been sent in to the dispensary on a given day, and who had received letters, should really have been treated by the dispensary."[2] Another witness, speaking of the Newcastle Dispensary, affirmed: "There is no doubt that in connexion with this charity many receive medical relief who could well afford to pay for it, and apart from the injustice to the medical profession it is making the people less reliant and more inclined to depend on outside help."[3] There is no occasion to multiply instances. The fact is too much felt by the profession to which this article is addressed to be overlooked by them.

Now this chaotic state of affairs means that the people are demoralised, and that the medical man, while heavily taxed as a ratepayer, is robbed at the same time of his legitimate practice. And the danger is, let there be no mistake about it, that this will go on. Our Public Health Service has grown up piecemeal; our voluntary institutions have arisen in response to no consistent or elaborated scheme; and if this disorderly growth continues the very existence of the private practitioner will be endangered in the near future. The opportunity of educing some system out of this muddle is given the profession now.

Acting in constant touch with expert medical opinion, the Minority elaborated their scheme of charge and recovery with a view to putting an end to this gratuitous treatment of non-destitute patients. Their whole scheme stands or falls upon this basis of charge and recovery. They see that it is no longer possible to apply the old Poor-law method of deterring applicants by making it unpleasant for them to apply, because, for the sake of the community, it is essential that all who require medical aid should get it at its best and promptly.

Some other method of deterring the non-destitute must be found. The Minority propose the simple and well-thumbed artifice of charging a definite amount for the assistance given and the systematic recovery of that sum wherever the applicant can afford to pay it. This will ensure that all those who desire treatment or who must be forced (as in the case of infectious patients) to accept it will be properly attended to. But it will also have the effect of preventing the man with an income from applying. If he has to pay in any case he will prefer to choose his own doctor rather than accept the efficient, but none too ceremonious, service offered him by the State. The Minority propose, therefore, that a departmental committee (Report. Chap. viii. E. 4) should decide what income for what size family would constitute ability to pay; what relatives should be held liable; how much should be charged; and how far the present legal procedure should be modified to make this recovery swift and effective. The Minority do not claim to have arrived at precise conclusions upon these points, but their statements are sufficiently detailed to make plain the outline of their scheme of charge and recovery. Realising the importance of this point for our own particular purpose we made special inquiries about it from Mrs. Webb herself. Without dogmatising, she considers that charge and recovery should proceed on the basis adopted for industrial schools and for the London County Council elementary schools—i.e., that payment should be demanded from all families where the income is above 3*s.* a week per adult member plus rent. This works out roughly in practice that in the case of an average family of five members with an income of more than 22*s.* per week payment would be enforced.

It is instructive to note in this connexion the payments now being carefully enforced by the London County Council for the medical treatment of its school children. We quote the following table from the statement of procedure for the guidance of children's care (school) committees and head teachers (Form M.T. 2 of the Education Department):—

Class.	Income of standard family (after deducting regular outgoings).	Ringworm cases—Full charge, 3*s.* per attendance for not more than five attendances.	Ear, nose, and throat cases—Full charge, 1*s.* 8*d.* per attendance for not more than three attendances.	Eye cases—Full charge, 1*s.* 4*d.* per attendance for not more than three attendances.
		Amount of remission per attendance.		
I.	Under 20*s.*	2*s.* 8*d.* may be remitted.	1*s.* 4*d.* may be remitted.	1*s.* may be remitted.
II.	20*s.* and under 22*s.* 6*d.*	2*s.* 4*d.* ,, ,,	1*s.* ,, ,,	8*d.* ,, ,,
III.	22*s.* 6*d.* and under 25*s.*	2*s.* ,, ,,	8*d.* ,, ,,	4*d.* ,, ,,
IV.	25*s.* and under 27*s.* 6*d.*	1*s.* 8*d.* ,, ,,	4*d.* ,, ,,	Full charge may be made.
V.	27*s.* 6*d.* and under 30*s.*	1*s.* 4*d.* ,, ,,	Full charge may be made.	,, ,,
VI.	30*s.* and under 32*s.* 6*d.*	1*s.* ,, ,,	,, ,,	,, ,,
VII.	32*s.* 6*d.* and under 35*s.*	8*d.* ,, ,,	,, ,,	,, ,,
VIII.	35*s.* and under 37*s.* 6*d.*	4*d.* ,, ,,	,, ,,	,, ,,
IX.	37*s.* 6*d.* and above.	Full charge may be made.	,, ,,	,, ,,

NOTE.—The amounts in the above scale may be raised or lowered having regard to special circumstances in particular cases, subject to the conditions specified in this circular.

In this scale families are dealt with in terms of adults, and for this purpose an adult is regarded as any person over 14 years of age, and each child of school age or under is taken as 0·75 of an adult. The standard family referred to in the scale is taken as two parents and four children—equal to five adults. The net income of the family is the amount available after deducting rent and other regular outgoings, such as payments for sick club, insurance, and fares to and from work.

The machinery for enforcing whatever charges Parliament decides to make has been most carefully elaborated. It is proposed that a registrar shall be appointed by every county or county borough council to keep a register of all the different forms of assistance given by any public authority, and also as far as possible of that rendered by voluntary agencies. The registrar will also, in accordance with the code decided upon by the Legislature, assess in every case the charge legally to be made for every public service, and he will enforce that charge upon the individual. This mode of charge and recovery will be, as it were, automatic. The committee of the council which gives the relief will be free as an administrative body should be from the judicial duty of making the charge for it. The registrar will be freed from every consideration except the legal. And incidentally we may note that this machinery will set the doctor free from the odium that he so often incurs to-day of enforcing the charges for his work. He will simply do his work as a doctor and the financial business will be entirely in other hands

[1] Appendix, vol. v.; App. lxviii.
[2] Appendix, vol. v., 51746.
[3] Appendix, vol. v.; App. civ.

This machinery is devised for the purpose of confining medical and other relief to the destitute. Is there any reason why it should not succeed? We may admit at once that its success has not been perfect in the past, and the obvious reason is that we have never provided any proper machinery for extracting payment from those who are able to make it. There is to-day nothing in the way of systematic charge and recovery throughout our public administration. The need for it has never been consciously recognised by the State.

But even with such broken and rusty machinery as exists, there has been sufficient charge and recovery to justify a belief that it will be easy to make it effective and systematic. The public health authorities have consistently recovered for all improvements made by them in the sanitary conditions of private houses. The Home Office collects annually a large sum in a thoroughly systematic fashion from the parents of children sent to reformatory and industrial schools. Where a board of guardians is energetic it collects every year from applicants or their relatives a considerable amount, running up to £3000 or £4000 in some unions, and for the lunatics in our county asylums the full cost of treatment is often recovered. Practically nothing is, of course, recovered for school feeding, because the education authorities are by law only entitled to feed the destitute.

The point to be enforced is that there is no inherent difficulty in recovering the cost of treatment from patients. It has been done to a large extent already. Given a properly framed code and the adequate machinery, it will be as easy as the collection of rates and taxes to restrict our medical service to the destitute by this process of charge and recovery.

Most members of the medical profession would like to see the voluntary hospitals brought into this scheme in order to prevent all hospital abuse and completely safeguard the private practitioner. The Minority suggest that some arrangement might be made with the voluntary hospitals by which they would fall into line with these proposals.

We have addressed ourselves throughout this article solely to the interests of the medical profession. We have urged the unassailable fact that changes are imminent in our public provision for medical assistance, and we would point out once more that unless the profession has some conscious plan of campaign with which to take the field it stands in risk of disaster. We believe that the proposals of the Minority outline the measure which Parliament will almost certainly introduce, and we think that these proposals offer practitioners many advantages which they do not enjoy to-day. Our only fear is lest by reason of divided counsels the profession should not demand from Parliament the consideration to which it is entitled.

In conclusion, we ask that these proposals may be studied also from the wider view-point of the welfare of the community. By means of a well-organised and well-qualified Public Health Service, acting in conjunction with a highly skilled private medical profession, it is easy to do much towards building up the health and with it the self-respect of our people. Every practitioner knows that almost an infinity of sickness might be prevented were proper measures taken to effect it. Underlying the whole scheme that we are recommending, and especially in its public health proposals, lies this intense desire to prevent what evil can be prevented. Upon that ground alone we claim with confidence the coöperation of the medical profession in converting these proposals into law.

CHELTENHAM GENERAL HOSPITAL.—At a recent meeting the governors of the Cheltenham General Hospital decided to draw on capital and to sell Consols to the amount of £2748 to meet a balance on the "Extension Building Fund" and an accumulating deficiency on the last two years working of the charity.

THE SOCIETY OF MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A general meeting of this society will be held on July 26th at 4 P.M., at 1, Upper Montague-street, Russell-square, London, W.C., when short addresses will be given on the history and aims of the society. During the afternoon Dr. W. G. Dickinson, who has for 15 years served the society as honorary secretary, will be presented with an illuminated address. All Members and Fellows of the College are cordially invited. The honorary secretary of the society is Dr. Sidney C. Lawrence.

TUBERCULOSIS IN ITS RELATION TO THE GENERATIVE FUNCTIONS.[1]

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IN order to be able to interpret correctly the mortalities from tuberculosis, as well as those from any other disease, it is necessary to compare the number of deaths with the living populations of the same age. If we divide a given mortality into its component parts and compare each of these with the general population, we shall arrive at completely erroneous results. For example, in 1904 154 Argentine males aged 20–30 years died from tuberculosis in Buenos Aires; 25 aged 50–60 years died from the same disease. If we compare these numbers of deaths with the general population, we arrive at the conclusion that the mortality from tuberculosis is greater at 20–30 years than at 50–60 years, when in reality what occurs is the opposite, as can be verified by comparing the first series of deaths with the respective living population, which amounted to 34,979, and the second series with its respective population, which only reached 4415.

Relatively recent studies carried out by this exact method in some countries of Europe have shown that the idea, so generally held up to a short time ago, with respect to the most fatal epoch of life in the case of tuberculosis was a mistaken one.

Applying the method to the mortality from tuberculosis in Buenos Aires, it becomes possible to confirm the fact that youth is not the age of predilection for this disease. At the same time certain data can be obtained which appear to place mortality from tuberculosis in marked relation to the exercise of the generative functions. The year 1904 has been selected as the basis of study, for the reason that on that year the last city census was taken, and there we find complete statistics regarding living populations with respect to age, sex, and nationality. The appended table shows the

—	ARGENTINES.				FOREIGNERS.			
	Age.	Living population.	Deaths from tuberculosis.	Per 1000.	Age.	Living population.	Deaths from tuberculosis.	Per 1000.
Males	0–2	26,219	35	1·33	—	—	—	—
Females ...	0–2	24,828	18	0·72	—	—	—	—
Males	2–5	33,594	37	1·10	—	—	—	—
Females ...	2–5	33,049	28	0·84	—	—	—	—
Males	5–10	51,006	33	0·64	5–10	4,854	2	0·41
Females ...	5–10	51,319	34	0·66	5–10	4,686	4	0·85
Males	10–15	40,862	24	0·58	10–15	7,944	5	0·63
Females ...	10–15	42,813	46	1·07	10–15	7,441	4	0·53
Males	15–20	27,935	60	2·14	15–20	17,565	28	1·59
Females ...	15–20	33,339	126	3·77	15–20	15,504	31	2·0
Males	20–30	34,979	154	4·40	20–30	58,259	128	2·19
Females ...	20–30	43,672	206	4·71	20–30	45,461	92	2·02
Males	30–40	18,919	106	5·60	30–40	57,644	158	2·74
Females ...	30–40	20,983	100	4·76	30–40	40,539	81	2·0
Males	40–50	10,296	55	5·34	40–50	49,223	159	3·23
Females ...	40–50	11,233	40	3·56	40–50	32,329	53	1·60
Males	50–60	4,415	25	5·66	50–60	27,575	77	2·79
Females ...	50–60	5,338	7	1·31	50–60	18,943	14	0·70
Males	60—*	2,588	12	4·63	60—*	16,126	46	2·85
Females ...	60—	5,029	4	0·79	60—	13,503	9	0·66

* Sixty years and upwards.

mortalities from tuberculosis as they affect Argentine males, Argentine females, foreign males, foreign females, calculated

[1] A paper read at the American International Congress of Medicine and Hygiene held in Buenos Aires in May, 1910.

at so many per 1000 of the respective living population. In the part dealing with male and female foreigners, the first two epochs have been omitted, because at these ages relatively few come to this country, and calculations based on small numbers are apt to give fallacious results.

What first attracts our attention is the greater mortality from tuberculosis amongst Argentines than amongst foreigners. This was what was to be expected, since the Argentine population is composed of strong and weak, whereas the foreign one is selected, for the strong and not the weak emigrate from one country to another in search of work.

In the second place, we find that in the Argentine, as well as in the foreign populations, men die generally from tuberculosis in greater proportion than women. This is opposed to what we should expect. We know that the conditions of life in which man lives in this country render him less predisposed to this disease than women; man is much more active, he lives in better surroundings of pure air, he receives in greater quantity the light of the sun. Drunkenness is rare in Buenos Aires. Some potent factor must therefore exist which so heavily weighs on the male mortality. What is this factor?

Let us note what occurs in the epoch of life between 50 and 60 years of age—an epoch in which the generative functions of women have ceased, while they continue in the case of men. As shown in the table, among Argentine women the line of mortality undergoes a rapid and marked descent, and the same occurs in the case of foreign women, and the descent in the mortality line continues yet further, in both cases, during the next epoch of 60 years upwards. We have then this fact, that in the case of women, both Argentine and foreigners, the advent of the menopause coincides with a marked failure on the part of Koch's bacillus to invade efficiently the human organism. Let us meanwhile find out what occurs with man at the same ages. Amongst Argentine men, in the epoch of 50–60 years, the mortality line, far from accompanying that of women in its descent, on the contrary rises to its highest level; in the case of male foreigners the line reaches a very high level, although not so high as in the epoch of 40–50 years. After 50 years of age man does not cease in his generative functions, but in the later epochs of life these functions are carried out at the expense of great loss of nervous energy. Generative functions always require a great expenditure of nervous force. The human organism does not possess an unlimited supply of this force, and this energy is necessary if Koch's bacillus is to be successfully resisted. So long as man finds himself in the fulness of his strength, the moderate use of his generative functions does not place him in unfavourable conditions to resist the bacillus of tuberculosis. But after mature age the organism is subject to degenerative changes, and then the exercise of the generative functions, especially if carried out in an immoderate degree, implies such an expenditure of force as leaves the organism in a defenceless condition to resist the invasion of the bacillus. After 50 years of age, woman economises her nervous force with the advent of the menopause; man, on the contrary, goes on spending his strength when the organism more than ever requires vigour to defend itself. Koch's bacillus attacks both. Woman defends herself successfully; man succumbs for want of resisting power.

In the third place the table shows that tuberculous mortality reaches its highest level in the case of Argentine men from 20 years upwards, especially between 30 and 60 years of age. In the case of Argentine women the highest level of tuberculous mortality obtains between 15 and 50 years of age, especially between 20 and 40 years. These epochs of life correspond more or less to those in which the generative functions are most active in each sex. Woman anticipates herself a few years. (For every man who marries in Buenos Aires before he is 20 years old ten women marry at the corresponding age.) And woman ends her generative life long before man. In the case of the foreign population the same tendency to coincidence between high tuberculous mortality and great sexual activity is manifested; foreign men present their highest level of tuberculous mortality from 20 years upwards, especially after 30 years of age; foreign women between 15 and 50 years, especially between 15 and 40 years.

In the fourth place the table can be divided into two marked levels of mortality—a high one and a low one. The low one corresponds to the ages of infancy and childhood in both sexes, and to the period after the menopause in the female; this level corresponds, therefore, to the ages of low sexual activity. The high level corresponds to maturity and advanced age in the male, and only to maturity in the female: that is to say, it corresponds to the epochs of great sexual activity in both sexes, and in the case of the male also to that epoch of life in which sexual activity takes place under disadvantageous conditions for the maintenance of vigour in the organism.

We know that Koch's bacillus can only successfully invade organisms which lack proper defence; we know that the lines of natural defence are weakened when the organism loses its vigour; we know that sexual functions exercised in immoderate degree, or exercised by organisms in a state of degeneration, spend inordinately the strength of the individual. Finally, we know that modern hygienic measures snatch from a sure death many children who afterwards pass on to the reproductive epochs of life with frail organisms. This simultaneous occurrence of great sexual activity, or sexual activity exercised under disadvantageous conditions (maturity in both sexes and advanced maturity in the male), and great mortality from tuberculosis cannot, therefore, be a mere coincidence—the first must be the cause of the second.

Buenos Aires.

A CASE OF

SUPPURATIVE PERICHONDRITIS OF THE LARYNX IN THE COURSE OF ACUTE PNEUMONIA; RECOVERY.

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THE great rarity of laryngeal complications in the course of acute pneumonia is accentuated in an annotation which appeared in THE LANCET of Feb. 26th, 1910, p. 586, where a case of œdema of the larynx is described which was reported to the Société Médicale des Hôpitaux de Paris by A. Chauffard and G. Laroche, and another case is referred to which was reported by Dévé [1] The following account of another case in which severe œdema of the larynx progressing to suppurative perichondritis occurred in the course of acute pneumonia, and in which recovery occurred, may therefore be of interest.

The patient was a man, aged 28 years, who on Dec. 21st, 1909, was taken suddenly ill with symptoms which were thought to be those of influenza. Four days later he developed severe lancinating pains in the lower part of the left side of the chest, the temperature rose to 105° F., and he became delirious. He was admitted to St. George's Hospital on Dec. 31st, 1909. An extensive pneumonia of the left lower lobe was present, the physical signs were typical, and the sputum was swarming with pneumococci. One million of a vaccine of a stock pneumococcus was administered subcutaneously on Jan. 1st, 1910, and two millions on the 4th. Crisis occurred on the 5th, but the delirium persisted until the 7th, and he remained feeble and tremulous. On the 10th the temperature rose to 102°, and a general punctate erythematous rash made its appearance which persisted until the 17th. On the 19th he developed a sore throat with enlarged tonsils, œdema of the fauces, and enlargement of the cervical glands. On the 22nd the right tonsil was incised and a small quantity of pus was evacuated. The right side of the epiglottis was now seen to be red and œdematous. On the following day there was considerable dyspnœa, and a further incision was made in the right tonsil, releasing more pus. The temperature during the 11 days following the development of the sore throat was normal. The swelling of the tonsils, fauces, and epiglottis subsided slowly, but an increasing swelling, which became brawny and painful, made its appearance in the neck on either side of the hyoid bone, larynx, and trachea, gradually extending downwards and greater upon the right side; there were much dysphagia and dyspnœa. The region of the right arytenoid was markedly

[1] Normandie Médicale, June 1st, 1908, p. 306.

swollen and the right vocal cord was fixed in a position of abduction external to the usual cadaveric position. On the 30th the temperature reached 101°. The laryngeal œdema had increased and now involved the entire right half of the larynx. The external induration had increased in the right anterior triangle and the whole larynx was pushed over to the left. The physical signs were those of perichondritis of the thyroid cartilage. A further dose of vaccine (3,000,000 pneumococci) was administered hypodermically. On Feb. 2nd the urine though acid contained blood, pus, and albumin and the patient was weaker. On the 3rd the dyspnœa was urgent and an incision was made into the external swelling over the right ala of the thyroid cartilage. The tissues were seen to be involved in a uniform hard œdema and no pus was found. No organisms could be cultivated from the wound. Laryngeal examination did not show any appearance of suppuration within the larynx. A few hours after the operation the patient in making an effort to cough suddenly brought up about two ounces of pus and his dyspnœa was at once relieved. On the following day he was very much better, the temperature was normal, and the laryngeal œdema and the external swelling were rapidly subsiding. There were a few coarse moist sounds in the chest accompanied by the expectoration of a little mucus and pus, pointing to the aspiration of some of the pus from the laryngeal abscess. The condition of the urine rapidly became normal and the patient quickly made an uninterrupted recovery and left the hospital on Feb. 16th. An examination of the larynx at the time of his departure showed that this organ was normal and that the movements of both vocal cords were perfect.

Of the two previously reported cases above referred to the laryngeal œdema appeared on the first day of the illness in Chauffard and Laroche's case and subsided without suppuration. This patient developed a pneumococcal pyæmia with secondary abscesses in several joints and pyuria which persisted for a week. He eventually made a perfect recovery. In Dévé's patient the laryngeal œdema appeared on the fifth day after defervescence and death occurred from asphyxia in 48 hours. In our patient the laryngeal complications appeared on the sixteenth day after the crisis, and the involvement of the fauces and tonsils three days earlier. The presence of a pneumococcal pyæmia was indicated by the occurrence of pyuria.

BRIEF NOTES ON THE TREATMENT OF RHEUMATISM BY BEE STINGS.

BY F. H. MABERLY, M.R.C.S. ENG., L.R.C.P. & L.M. EDIN., L.S.A.

IN October last I happened to see an old patient who three years before had a severe attack of rheumatism which developed into chronic rheumatic arthritis. Almost all known remedies—baths at Buxton, Llanwrtyd, and Droitwich, electricity, massage, and the usual drugs and diets—were tried without success, and he became so ill that although only 55 years of age he was pensioned off by the Birmingham Water Department, where he was employed. He steadily grew more helpless, and had long given up all treatment. His legs and arms were flexed strongly, his chin was drawn down almost on to his chest, and he was only able to open his mouth about half an inch. He was never free from pain, and from being a fine and active man he had become a helpless cripple. I tried to cheer him, and told him that if I heard of anything likely to do him good I would let him know, and the same evening I happened to meet a "bee expert" who said the case was just one for the bee treatment. So I made arrangements to have the patient driven to my house, and he was given the first application on Oct. 30th. With the greatest difficulty he hobbled into my consulting-room, his height being only 5 feet 3 inches so doubled up was he, though his real stature was 5 feet 10 inches. We persevered with the bee treatment, giving him about 18 stings weekly, and in two months he stood 5 feet 5 inches, he could hold his head up and open his mouth fully, and the pains in the joints had almost disappeared.

A second case brought to my notice was that of a man about 35 years of age, who had been laid up three times with rheumatic fever for six or seven months each time, and found his joints increasingly stiff with each attack. In his case the bee stings did marvels. He told me that his feet had always been stiff from the first attack, but now he could walk anywhere, and "did about 20 miles every Sunday." I found his ankle movements to be perfect and he stood on his toes for me quite easily. He said that he always ate and drank whatever he liked, and whenever he could catch a bee in his garden he did so and put it on. I visited a number of other cases with the same friend, some of old-standing chronic rheumatism, both in elderly and younger subjects, and all were doing well, while in nearly all the usual remedies had been tried without any good result.

I select a few of my own cases for mention as examples of the treatment. Mrs. ——, a married lady, aged 30 years, was attacked with rheumatic fever while on holiday about 20 miles from home. She was brought back delirious in a motor and confined to bed for eight weeks. During the first fortnight her temperature kept between 104° and 105° F. with profuse acid perspirations and very severe joint pains. Endocarditis supervened and left a regurgitant mitral murmur. During convalescence the joint pains were very troublesome, and after trying various remedies without much relief I persuaded her to allow me to try the bees. Five applications completely relieved her and she has been quite well since. Miss ——, a young lady aged 25 years, was attacked with influenza four years ago which left a neuritis of the left arm. This was so painful that she could not even sew with comfort, and if she attempted to ride her bicycle the jar was more than she could bear. She carried her arm in a sling for six months, giving it perfect rest; she also tried electrical treatment, massage, and various ointments, but without any permanent good result. A few months ago I persuaded her to try the bees, and four applications completely cured her. Mr. ——, aged 35 years, a professional violoncellist, in December, 1909, was attacked with influenza leaving "rheumatic" pains in the joints. Although I advised him to try the bees, he had found such good results from certain saline baths on a former occasion that he determined to take a course of them again. During his stay he was attacked with rheumatic fever and was laid up there for some weeks. When he returned the pain and stiffness in his joints were very severe and prevented him fulfilling any professional engagements. On Feb. 27th I put 15 bees on him and on March 3rd he played at a concert away from home. He continued the treatment until May 29th, altogether having ten applications of bees, and is now quite well. I conclude from this that the remedy, if it does not effect a complete cure, gives relief in almost hopeless cases.

In elderly people it is better to start with about six stings for the first three applications when they may be gradually increased, even up to a couple of dozen. Sickness often supervenes if too many are put on at first. There is a little difficulty for a novice in putting them on, but I have perfected a pair of forceps which, while preventing injury to the bees, holds them firmly. The stings should remain in for a few minutes before removing them. In old-standing cases the treatment will have to be continued for many months.

Bibliography.—THE LANCET, June 22nd, 1907, p. 1737; June 29th, 1907, p. 1806; August 3rd, 1907, p. 320; Oct. 5th, 1907, p. 985. Brit. Med. Jour., June 22nd, 1907, p. 1517; June 29th, 1907, p. 1579; July 6th, 1907, p. 63.

Handsworth Wood, Staffs.

THE ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, VENTNOR.—The medical report of this nospital for the years 1905 to 1908 has just been issued at the price of 1*s.* from the London office of the institution, 18, Buckingham-street, Strand, London, W.C. The report, which is illustrated with many pictures of the hospital, its grounds, and the patients at work and play, is divided into two parts, the first dealing with the climate and life of the patients and the second containing a commentary on the medical statistics; while an appendix adds meteorological and other tables. It is interesting to note that during the four years covered by the report the average annual number of sunless days was only 58, the average number of days or nights during which rain fell 171, the average number of nights on which there was frost 13, and the average number of days with a maximum shade temperature of over 70° 25. The statistics, which are "simply a contribution to the study of pulmonary tuberculosis," show that 3000 patients have been discharged from the hospital during the years 1905–08, and the authors of the report state that "they [the statistics] have been considered 'without prejudice' and a personal interpretation of the facts has been left as far as possible to the reader."

Reviews and Notices of Books.

Diseases of the Heart. By JAMES MACKENZIE, M.D. Edin., M.R.C.P. Lond. Oxford Medical Publications. Second edition. London: Henry Frowde and Hodder and Stoughton. 1910. Pp. 419. Price 25*s.* net.

THE importance of Dr. Mackenzie's original and interesting book on "Diseases of the Heart" is strikingly attested by the appearance of a second edition so soon after the publication of the first and by the demand for its translation into a number of languages, of which we are told in the preface. Moreover, in all recent monographs on the subject of heart disease Dr. Mackenzie's views and methods are quoted, and it is not too much to say that in this country, at any rate, the more careful and accurate clinical study of the conditions of the circulatory mechanism in disease which is now possible is largely due to his pioneer work in the application of instrumental methods, and still more to his patience and ingenuity in interpreting them. It is probable that in the past the mechanical aspects of the circulation have somewhat dominated the minds of clinicians to the partial exclusion of physiological or vital considerations. The remarkable work of Gaskell on the properties of heart muscle, although classical to the physiologists, has been largely neglected or ignored by the clinician. It is interesting to notice that when Gaskell's work has been systematically applied to the investigation of the problems of the mechanism of the human heart it has resulted in valuable advances in our knowledge, both as regards normal and diseased conditions. Dr. Mackenzie briefly discusses the myogenic and neurogenic doctrines of the origin of the heart beat and indicates a possible compromise between them. He also describes the five primitive functions of heart muscle as demonstrated by Gaskell. He gives a brief but intelligible account of the nature and functions of the auriculo-ventricular bundle and of the nodes of Keith and Flack and of Tawara, which are regarded as the remains of the primitive cardiac tube in the mammalian heart. The symptoms occurring in cardiac disease are then critically considered, together with their significance and their clinical indications; incidentally Dr. Mackenzie develops his own views as to the nature of visceral pain—viz., that it is of reflex character, referred to other parts. He described it as a viscero-sensory reflex, and maintains that it is often protective in character. To this class of reflex protective phenomena angina pectoris is referred, occurring when the contractility of the heart is opposed by a resistance beyond its capacity.

Instrumental methods of investigation are described in detail, and the two forms of polygraph employed by Dr. Mackenzie are figured and described. The interpretation of the tracings obtained is worked out clearly, more especially in regard to the venous pulse. The various forms of this are described in detail, and the nature and mode of production of the different waves and depressions are discussed in so far as they are known. It is especially in the study of the complex and hitherto little understood subject of arrhythmia that Dr. Mackenzie's method has proved so valuable and instructive, and the analysis and classification he gives of this subject are by far the best with which we are acquainted. The various forms of arrhythmia differentiated at present are as follows: sinus irregularities, extra-systoles, the nodal rhythm, irregularities due to defects in the conducting system, and those due to depression of contractility.

Interesting tracings illustrative of these conditions are given; these are in all cases reproductions of actual records, for Dr. Mackenzie states in his preface that he desires to keep the record of his facts apart from their interpretation, which must be at present tentative. The views he gives represent the present state of his knowledge. He has certainly afforded a scientific and rational method for the study of obscure cases of cardiac irregularity and thrown light upon the nature of many conditions of disturbed cardiac action. The most controversial and difficult of these irregularities is that to which Dr. Mackenzie has applied the term of the nodal rhythm, on the assumption that the contraction of the heart starts at or near the auriculo-ventricular node instead of at the roots of the great veins in the Keith-Flack node as under normal conditions. It is this form of irregularity which most commonly occurs in the majority of cases of severe heart failure. The evidence of its nature, though strongly suggestive, is hardly conclusive, and Dr. Mackenzie admits this. The peculiar condition of paroxysmal tachycardia is also discussed, and also a variety of slow rhythm described as nodal bradycardia. A chapter is devoted to the effects of digitalis on the human heart, and here Dr. Mackenzie registers a strong plea for the careful and systematic observation of the action of drugs upon the heart by instrumental methods. A new feature in this edition is a chapter on the electro-cardiogram, by Dr. Thomas Lewis. The Einthoven string galvanometer is described, tracings are reproduced, and their interpretation is discussed.

Dr. Mackenzie's book fully deserves the success it has obtained, and it will doubtless long remain as one of the most original and suggestive contributions to the clinical study of heart disease.

A Practical Study of Malaria. By WILLIAM H. DEADERICK, M.D. London and Philadelphia: W. B. Saunders Company. 1909. Pp. 402. Price 20*s.* net.

THIS treatise is the work of an observant physician engaged entirely in general private practice largely in the home of the severer forms of the disease. When we consider the busy work of a country practitioner and the few moments he can snatch from his arduous labours we can appreciate to the full the hard work that has evolved this exposition of malaria in both its scientific and practical aspects. In order to make the work as complete as possible we see that our author has given especial attention to that "mystic paramalarial syndrome," hæmoglobinuric fever. He also describes for the first time in the English language the parthogenetic cycle of the parasite the significance of which was first noticed by Schaudinn, and which affords the most rational explanation of latency and relapse.

The work opens with the history of the successive steps leading to the discovery of the true nature of the disease, illustrated by the photographs of Laveran and Ronald Ross. Next the facts relative to the geographic distribution of the disease are pourtrayed, and then we come to its etiology. Here we find noted the influence of climate, season, rainfall, soil, topography, altitude, earthquakes and volcanic eruptions, inundations, trees and vegetation, winds, and race, amongst other points. With regard to the endemic index, Ross's dictum of determining the degree of malaria in a given locality by ascertaining the average time in which a newcomer becomes infected is quoted with approval. Native children constitute the class of newcomers most accessible for making the estimate, and thus the percentage of children infected in the locality is the index to the prevalence of malaria in that region. The three modes of infection are then set forth—namely, congenital, artificial inoculation, and inoculation through the bites of mosquitoes, and with regard to the latter a lengthy list of the malaria carriers is given. The facts relative to malaria-bearing mosquitoes as regards their breeding places, their biology and anatomy are illustrated by some beautiful plates; and then the student is instructed

how to investigate this insect. This section is rendered clear by a diagrammatic picture of the cycles of the parasite, whilst there are some very finely executed coloured plates of the various forms.

The vexed question of the etiology of hæmoglobinuric fever receives due attention, and the arguments in favour or otherwise of the three theories as to its nature—that it is malaria, that it is quinine poisoning, and that it is a disease *sui generis*—are set forth. The author, we see, holds that malaria is essentially and solely the predisposing cause, and that in some cases it may act also as the exciting cause. This may be so, but many observers in India state that they have never seen a case of blackwater fever, although they have had under their care hundreds of cases of malaria of all degrees of severity; and the same is also true with regard to the influence of quinine. Sambon, and the facts in our experience cause us thoroughly to agree with him, holds to the third theory, that it is a disease *sui generis*. A chapter on the pathological anatomy of malaria follows, also well illustrated by plates, after which we come to the clinical history of the disease. This is excellent; the varieties given are the simple tertian, the quartan, and the æstivo-autumnal, with its two chief subdivisions, the malignant tertian and quotidian, and lastly, the form of pernicious malaria. The individual symptoms are analysed, and amongst them we find that the writer agrees with the valuable researches on the urine changes formerly shown by Dr. Henry Ralfe. Lastly, this chapter concludes with the subject of hæmoglobinuric fever, chronic malaria, malaria in children, malaria in the negro, and the surgical aspect of malaria.

With respect to the diagnosis of the disease, speaking of periodicity, the author rightly states that quotidian periodicity is worthless, but that tertian and quartan are pathognomonic. There are, however, rare examples to this rule; for example, the case of malignant endocarditis reported by Dr. J. Rose Bradford which exhibited tertian, and a case of trypanosomiasis under Manson showing quartan periodicity. The student is well instructed in the method of making a microscopic examination of the blood. With regard to this examination stress is rightly laid on the fact of the necessity for more than one examination; the procedure is not such an easy performance as some speakers on the subject, themselves evidently never having once investigated the matter, would have us believe. The third test for malaria is the therapeutic: a fever which resists quinine is not malaria. Remarks on the differential diagnosis conclude the chapter. The remaining portion of the work is occupied with the prognosis of malaria and its prophylaxis, and here the results gained at Port Said and Klang and Port Swettenham are given. The chapter is one of the best in the book. The concluding remarks deal with the actual treatment of the disease.

Dr. Deaderick has produced a work which should hold a place in every medical library.

Travaux du Laboratoire de M. Charles Richet, Professeur de Physiologie à la Faculté de Médecine de Paris. Paris: Félix Alcan. 1909. Pp. 513. Price 12 francs.

To anyone who knows the multitudinous interests in physiological subjects of the genial, learned, and versatile professor of physiology in the Medical Faculty of the University of Paris, it will come as no surprise that Volume VI. of these "Travaux" should deal with subjects so diverse as Anaphylaxie, Alimentation, and Toxicologie.

Everyone is familiar with prophylaxis, but its antithesis, anaphylaxis, viz., the curious property possessed by certain poisons to augment, to increase—instead of diminishing—the sensibility of the organism to their action, is a more recent conception. It is exactly the opposite action to that called prophylactic or immunising. In immunising by previous injections the organic sensibility of the organism is diminished. Already anaphylaxis is a familiar word in medical literature. The author has experimented largely with the "venin" obtainable from the tentacles of the sea anemone preserved in glycerine and extracted with water. This filtered extract is very toxic. After repeated injections the subjects become more sensitive to the poison, which, however, appears to consist of two distinct poisons—one "thalassine," which produces urticaria and pruritus, and in moderate doses is not fatal; the other is a toxo-albumin which the author calls "congestine." It causes intense congestion of the whole intestinal canal. It produces excessive irritation, vomiting, diarrhœa, and tenesmus, while the fæces are mixed with blood, and post mortem the whole gastro-intestinal mucous membrane is hæmorrhagic.

Professor Richet contributes a second memoir on anaphylaxis, this time by means of a substance obtained from the common mussel, which he calls "mytilo-congestine." A third memoir deals specially with thalassine which he characterises as a "poison pruritogène" which is contained in the tentacles of actiniæ. What is practically an amplification of these researches is the Contribution to the Poisons of Actiniæ, by Aug. H. Perret. The other papers deal with the action of phosphorescent calcium sulphide on lactic fermentation, on the action of minimum doses of substances on lactic fermentation, and on the influence of a free surface on lactic fermentation—all three by Professor Richet.

The papers on Alimentation deal with feeding of tuberculous dogs on raw and cooked meat, which seems to retard the progress of the disease. Similar results have been obtained in the human subject. Langlois and Desbouis found that the inhalation of the vapour of naphtha or benzol causes "hyperglobulie"—i.e., increase of the red corpuscles up to 15–30 per cent., which seems to be due to increased production of the red corpuscles. Altogether this is an interesting series of researches.

Elements of Pharmacy, Materia Medica, and Therapeutics. By Sir WILLIAM WHITLA, M.A., M.D. R.U.I., LL.D. Glasg., Professor of Materia Medica and Therapeutics, Queen's University, Belfast. Ninth edition. London: Baillière, Tindall, and Cox. 1910. Pp. 674. Price 9*s.* net.

THE high standard which the author set in previous issues of this justly popular work has been well maintained. In general arrangement the new edition does not differ from the eighth edition, published seven years ago, but many alterations have been made in the text and new matter has been introduced.

Part I. explains the various operations of compounding and dispensing remedies and the different processes mentioned in the Pharmacopœia for the preparation of its numerous drugs and formulæ. This part, in the present edition, contains two new chapters; these deal with the making of compressed tablets and capsules, in which forms medicinal agents are nowadays frequently prescribed. The chapters on tablet making and capsule making treat of the subjects in a concise and practical manner, and although it is not in the ordinary experience of many medical practitioners to manufacture tablets or capsules, the instructions given should enable them to prepare either form of medication should necessity arise, and in particular to judge the merits of the preparations which they buy. Another addition to Part I. occurs in the chapter on weights and measures, in which the new designations, *mil*, *decimil*, and *centimil*, are explained, the *mil* being the equivalent to the older term, the *millilitre*, or measure of the volume of one cubic centimetre. Part II. treats of the science of writing and reading prescriptions, and includes a short glossary of

terms and abbreviations used by physicians in ordering remedies. It also deals with the classification of remedial agents and the questions of dosage and incompatibility. Part III. treats of the materia medica of the British Pharmacopœia and the official preparations, and since the 1898 Pharmacopœia formed the basis of this section in the eighth edition of Sir William Whitla's work no material alteration has been necessary in the new edition. Part IV. discusses the pharmacological action of drugs in connexion with their therapeutic indications and uses. This section is of particular value to busy practitioners, and a perusal of the notes on some of the drugs shows that the author has kept his book abreast of the times. In the note on lactic acid the author refers to the properties of the various lactic-acid-forming bacilli and expresses the belief that the best results are obtainable from the home-made koumiss. Part V., the section on non-official remedies, has been largely rewritten, and while a number of remedies have been omitted from the present edition nearly a hundred have been added, 125 pages being devoted to this section. The notes on some of the drugs have been extended (for instance, the notes on glycerophosphoric acid and pyrogallic acid), while an ably written account is included of the new sera and vaccines which will be as instructive to students as it will be useful to practitioners for purposes of reference. The notes on gland substances have also been extended. Synthetic products, like aspirin and urotropine, are treated more fully than in the eighth edition, and others (for example, phenolphthalein) have been introduced. Some of the synonyms and trade names by which various synthetic products are known are mentioned, but with the proviso, in at least one case, that the substances by which these names are covered are probably not absolutely identical.

As a text-book for medical students this work can be recommended as strongly as ever, and as a book of reference practitioners will continue to find it extremely useful.

LIBRARY TABLE.

The Conquest of Disease through Animal Experimentation. By JAMES PETER WARBASSE, M.D., Surgeon to the German Hospital, Brooklyn. London and New York: Appleton and Co. 1910. Pp. 176. Price 4*s.* net.—This able defence of so-called vivisection is written down to the level of the scientific knowledge of the average layman, but it is at the same time an accurate historical survey of the results of scientific research, obtained by experiments on animals. The volume will therefore be found most useful to those who wish to stock their minds with well-arranged and trustworthy statements for purposes of defensive argument. The language employed by Dr. Warbasse is occasionally somewhat flowery, but his statements are never exaggerated, and his valuations of the results obtained by experiment are never too highly estimated. Indeed, in many instances they might have been more forcibly stated. For instance, it is scarcely possible to over-value the experimental work of Dr. J. F. D. Jones in 1805 on the ligation of arteries. The results were enormous, though the surgical experiments on animals were very few. The present generation has forgotten them, but surgeons of the two generations just past were well aware of their value, and Sir John Erichsen said (immediately after a reference to Dr. Jones's work), "No subject in surgery affords a stronger evidence of the application of the experimental pathology to practice than this, as our knowledge of it has been wholly gained by experiment on the lower animals." And during every second of every 24 hours arteries are being tied by surgeons all over the globe, and in many cases each such operation represents a human life saved. If such is the numerical outcome of a few experiments made at the end of the eighteenth century, the benefits of which must ever abide with us, who can foresee the results of inoculation methods which are being worked out on animals to-day? The volume before us gives an admirable sketch of the scope of such experiments and the benefits which have been already derived from them. We trust that Dr. Warbasse's volume may have a large sale among the general public, as it will certainly throw light in dark places.

Cleanliness versus Corruption. By Lord RONALD SUTHERLAND-GOWER. London: Longmans, Green, and Co. 1910. Pp. 56. Price 6*d.*—This brochure is an appeal in favour of cremation as opposed to burial. It consists chiefly of anecdotes and reminiscences dealing with the horrors of the charnel house and graveyard, addressed to the general public, and the matter presented carries its own case with it. The growth of cremation as a practice in England is very slow, so slow that we welcome any literature which is likely to popularise the method. We may note one very important point from the rules of the Cremation Society of England, which is that life membership may be secured by a donation of five guineas, and that life membership entitles the member to be cremated at death at any crematorium in Great Britain. Such a subscription may be considered an economical investment.

Pocket Therapeutics and Dose Book. By MORSE STEWART, B.A., M.D. Fourth edition, revised. London and Philadelphia: W. B. Saunders Co. 1910. Pp. 263. Price 5*s.* net.—As this little work has reached a fourth edition we presume that readers have found it useful, and as a means of refreshing the memory as to doses we can imagine that it would be so. Except for the dose-table, however, the remainder of the book is of little value unless as a cram book. The translations and expansions of Latin abbreviations and terms are in many instances very inaccurate. Thus the abbreviation "Concut." is expanded into "Concuti" and said to mean "shake," which it certainly does not mean. "Div." is said to mean "Dividendus" and this again to mean "Divide," while "Quat. in die" is expanded into "Quatuor in die" and translated as "four times a day." Dr. Stewart should see to these errors in his next edition.

The Pharmaceutical Pocket Book, 1910–1911. Edited by JOHN HUMPHREY. London: The Pharmaceutical Press; and Simpkin, Marshall, Hamilton, Kent, and Co., Limited. Pp. 412. Price 3*s.* 6*d.* net.—This is a most handy little book which should prove of use to all students of pharmacy as well as to pharmacists. The general directions as to the science and art of dispensing are good and clear, while the Latin of abbreviations and the translations thereof are correct. The only portion of the book which we think might be improved is the section on the analysis of a mixture of a solution of metallic salts. This section appears to us needlessly involved, both as regards the tabular statement and the text. Other portions of the book consist of tables of various sorts, such as physical constants, tables of freezing mixtures, thermometric tables, weights and measures, notes on photographic matters, a small dictionary of pharmaceutical synonyms, and a valuable section on the training of pharmacists.

A Graphic Atlas of the World, with General Index. Edited by J. G. BARTHOLOMEW. London: John Walker and Co., Limited. 1910. 128 maps and plans, with 139 pages of index. Price 5*s.* net.—The world has now grown so small by reason of the growth of intercommunication that there are very few places left from which news does not arrive, if not day by day, at least week by week. This being so, an atlas is a necessity for anyone who wishes to keep himself in touch with the doings of his fellow creatures, and the work now before us is an admirable specimen of its class. Two maps of special interest are

those showing the North and South Polar regions. In the former we note that Cook is credited with having reached the Pole in April, 1908, as well as Peary in 1909, an entry which certainly needs modification. Considering the small price charged, the atlas is a wonderful publication. It contains an astonishing amount of names, and even the smallest can be easily read, thanks to the clearness of the printing.

JOURNALS AND MAGAZINES.

The Journal of Physiology. Edited by J. N. LANGLEY, Sc.D., F.R.S. Vol. XL., No. 5, July 1st, 1910. London and Edinburgh: Cambridge University Press. Price 6s.—The contents of this number are: 1. The Influence of Oxygen Inhalations on Muscular Work, by Leonard Hill and Martin Flack, from the Laboratory of the London Hospital Medical College. 2. A New Form of Blood Gas Pump, by G. A. Buckmaster and J. A. Gardner. The apparatus is a modified Topler pump. The advantages claimed for it are: the absence of all taps and joints; that if due precautions are taken there is no possibility of a leak, and hence that the figures obtained are absolute values; that the apparatus can be cleaned, sterilised, and put together again with facility; and that it is inexpensive. 3. The Diastolic Filling of the Mammalian Heart, by Hermann Staub, Dr. Med., from the Institute of Physiology, University College, London. 4. The Heat Produced in Contracture and Muscular Tone, by A. V. Hill, B.A., Trinity College, Cambridge, George Henry Lewes Student, from the Physiological Laboratory, Cambridge. The author finds that the heat production occurring at the normal twitch of the skeletal muscle of a frog, for the determination of which he has devised a special apparatus, a drawing of which is given, is almost instantaneous. Yet prolonged heat production lasting sometimes for several minutes is seen in many instances. In other cases, when the muscle has been left unstimulated for some time, a shock may even set up a permanent constant heat production, but then contracture or prolonged contraction is always present; probably therefore prolonged heat production causes prolonged contraction. There is every reason for believing the heart is analogous to a muscle stimulated at regular intervals. 5. On the "Heat Coagulation" of Proteins, by Harriette Chick, D.Sc., assistant, Lister Institute of Preventive Medicine, and C. J. Martin, M.B., D.Sc., F.R.S., director of the Lister Institute of Preventive Medicine. The main conclusion arrived at by the authors of this article is that "heat coagulation" is not purely a heat effect, but that it is a reaction between protein and water, the effect of temperature being merely to accelerate the reaction. 6. On the Rhythmical Contractility of the Anal Musculature of the Cray-fish and Lobster, by F. R. Miller, B.A., M.B., demonstrator of physiology in the University of Toronto. This number contains also the Proceedings of the Physiological Society for June 18th, 1910.

Annalen für das gesamten Hebammenwesen des In- und Auslandes. (*Annals for Midwifery in Germany and Abroad.*) Edited by Professors DIETRICH, KOBLANCK, WINTER, and Frau OLGA GEBAUER. Berlin: Elwin Staude. Quarterly. Yearly subscription, M.10. 1910. Band I., Heft 1.—This new quarterly review has been founded and published at the request of the German Association of Midwives. For a long time it has been felt by those interested in these questions that there existed a definite want of a paper to deal with questions affecting midwifery as practised by midwives. At the present time there is no publication which gives any information upon such important matters as the current legislation, statistics, regulations dealing with midwives, and the proceedings of the midwives of various countries. This want has been more especially felt by those whose duty it is to prepare statistics on economical and professional questions concerned with the practice of midwives. The *General German Midwives Gazette* does not concern itself with these matters, but is written more especially for midwives themselves. In order to fill this vacancy the editors have published these Annals, which will appear quarterly, and which will be devoted entirely to the consideration of the many administrative and other problems connected with the training and supervision of midwives. In view of the fact that these questions are really of international importance, it is proposed to publish articles not only in German but also in English and French, and on special occasions even in other languages. The original German articles will be accompanied by a short English and French summary containing all the salient points, so that they may appeal to a wide circle of readers. The midwives question is one of increasing importance, and this review will undoubtedly be a very valuable publication. In the present number Professor Dietrich contributes an article on Midwife Reform in Prussia, in which he gives a sketch of the historical development of the midwives in Prussia and enters into the details of the conditions at present prevailing. He shows that the training and supervision of the midwives are far from perfect, and that their material position and their security against want in old age are entirely inadequate. The Prussian Government has taken the question up and has instituted a number of reforms and regulations for the better training and examination of the midwives. It has also arranged that midwives should return to their training schools for further teaching after the first ten years of their practice and then every five or six years, and has also rendered the supervision of their work by the district physicians more effective. It has arranged, also, that the scale of fees shall be increased, and that in cases of invalidity a midwife shall be able to invoke the assistance of the professional relief funds of the Society of German Midwives. A short account of the Reforms in the British Midwifery Profession is contributed by Mr. H. Walter, the English summary of which contains a number of errors. It is to be hoped if the editors give summaries in English of articles written in German that they will see that they convey the meaning of the original article correctly. This review should prove of much value to all those who are interested in this question, but the value will depend to some extent on the accuracy of any translations that are made.

Archives of the Roentgen Ray.—With the June number of this publication is commenced a new volume—the fifteenth. It appears somewhat altered in form, and we think the alteration will meet with the full approval of its readers. It must be admitted that the former size of the paper was an awkward one for reading, for storage, and for carriage, but that size was chosen in the early days of Roentgenography so as to permit the reproduction of a full-sized plate. This is no longer of any importance since the improved skiagrams of the present day will yield reproductions on a smaller scale and yet give sufficient details. In its new form the changes in our opinion are all for the better. The *Archives* has now the same sized page as our own, and the principal articles are printed in single-column pages with a large clear type. Among the articles in the present number we notice an editorial dealing with the question of radio-vaccination, in which the editor points out that many observed effects of treatment by radium, X rays, and other radiations can only be explained on the assumption that the process brings about a true vaccination, "a carrying into the lymph channel of a toxin produced by a local pathological process." Although the term is not a happy one, from the evidence there seems sufficient reason for investigation being made

in this direction. A very interesting paper is furnished by Dr. C. Kaestle, Dr. H. Rieder, and Dr. G. Rosenthal entitled, "The Bioroentgenography of the Internal Organs." In this the authors describe their methods of taking kinematograph pictures of the movements of the stomach and intestines. Their apparatus is capable of taking four full-sized plates per second, and a study of the plates that are reproduced throws an interesting light on the movements of the stomach, especially near the pylorus. Those specially interested in gastric disorders should read this paper, since the results there recorded tend to upset many ideas formerly held. Dr. Leopold Freund, of Vienna, gives a very complete paper on the Roentgen Treatment of Goitre. He narrates his own experience in 23 cases, besides quoting the experiences of others. Passing on to the July number, just issued, we find a paper by Dr. Franz M. Groedel on Recent Advances in the Roentgen Diagnosis of Diseases of the Stomach and Bowels, which is a useful addition to the paper referred to in the June number, and is illustrated with excellent plates and diagrams. Dr. M. Nageischmidt contributes an extensive paper on the Thermic Effects Produced by High Frequency Currents. This subject of "thermo-penetration," as it is called, attracted a great deal of attention at the recent Paris Congress on Physiotherapy. By means of this method it is possible to raise the temperature of the tissues to any desired degree, and this is done by generating the heat within the tissues and not by conduction from without. We understand that arrangements are being made for the author of this paper to give a demonstration of the method in London during the autumn. Running through both numbers is a summary of the proceedings of the Paris Congress on Physiotherapy, and also reports of societies, reviews of books, notes and abstracts, &c., keeping the paper up to the high standard it has always aimed at. The illustrations are all that could be desired.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

A QUARTERLY meeting of the Council was held on July 14th Mr. H. T. BUTLIN, the President, being in the chair.

The PRESIDENT reported the result of the meeting of the Fellows for the election of four members of Council, as already reported in THE LANCET.

Mr. Lockwood, Mr. Pollard, Mr. Ballance, and Mr. Bland-Sutton were introduced, made declarations in the terms of the oath prescribed by the Charter of 1800, and took their seats on the Council.

A letter was read from the Secretary of State for Home Affairs conveying the King's thanks for the loyal and dutiful Address of the College on the occasion of the lamented death of His late Majesty King Edward VII.

The PRESIDENT announced that His Majesty the King had graciously consented to continue to be an Honorary Fellow of the College.

It was resolved, in accordance with the recommendation of the Museum Committee, that the "Guide to the Museum" shall be offered for sale at 6*d*. per copy. It was also resolved that a collection of medico-legal specimens be formed in connexion with the Museum of the College.

The best thanks of the Council were given to Sir John Tweedy for his gifts of books, including some rare editions of the fifteenth century.

The best thanks of the Council were given to Mr. Stephen Paget for presenting the late Sir James Paget's notes of lectures and various manuscripts.

The names of two Members of the College who had previously been removed from the Medical Register were removed from the roll of Members of the College.

The PRESIDENT stated that the conservator of the museum and the pathological curator would conduct members of the British Medical Association over the museum on Wednesday, July 27th, between 4 and 6 o'clock.

Mr. Butlin was re-elected President and Mr. Clement Lucas and Mr. Mansell Moullin were appointed Vice-Presidents.

The following lecturers were appointed:—Arris and Gale lecturer: Dr. G. Elliot Smith, three lectures on the History of Mummification. Erasmus Wilson lecturer: Mr. S. G. Shattock, six demonstrations on Advanced Surgical Pathology. Arnott demonstrator: Dr. Arthur Keith, six demonstrations of the Contents of the Museum. Hunterian professors: Dr. Arthur Keith, six lectures on the Anthropology of Ancient British Races, illustrated by the Museum collection; Dr. F. W. Edridge-Green, two lectures on Colour-vision and Colour-blindness; Dr. Walter d'Este Emery, two lectures on the Immunity Reaction in Relation to Surgical Diagnosis; Mr. Kenneth W. Goadby, one lecture on the Association of Diseases of the Mouth with Rheumatoid Arthritis and certain Other Forms of Rheumatism; and Mr. Benjamin Moore, one lecture on New Views on the Chemical Composition and Mode of Formation of Renal Calculi.

The next ordinary meeting of the Council will be held on Monday, July 25th.

POOR-LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

A COUNCIL meeting of this association was held at 34, Copthall-avenue, London, E.C., on July 14th, Mr. D. B. BALDING being in the chair. He was congratulated by the members present on his recovery from his recent accident.

A notable instance of the inequitable manner in which district medical officers are frequently treated by the guardians came up for consideration. A member of the association had been notified by his board that it proposed to put on to his district, without additional remuneration, a portion of his colleague's, who had applied for an increase of salary on account of the great increase of work. The guardians recognised the justice of this claim, but instead of acceding to their officer's request, decided to relieve him at the expense of his colleague. The latter's work had also increased, but not in the same proportion, but he was now doing much more work than in former times, and his salary was the same as it had been during the last 30 years. The council advised an appeal to the Local Government Board if the redistribution were insisted upon, and resolved to use all the influence of the association in the member's behalf.

The council next considered the agenda for the special meeting of the association arranged for Friday, July 29th, at 4 P.M., in the council chamber of the British Medical Association. After some discussion it was decided that the time should be devoted to the following resolutions, the consideration of which was adjourned from the annual meeting at Halifax on July 1st to a subsequent meeting of the association:—

(1) That it is not desirable that there should be a "break up" of the present Poor-law system. That proper reform of existing institutions would be better for the welfare of the sick poor and the good of the nation.

(2) That any system in which *free* medical relief is given subject to no other condition than the *subsequent* recovery of the cost from all able to pay would be pauperising to the nation and ruinous to the interests of all medical practitioners in poor districts.

(3) That except in urgent cases some *test*, such as the present medical order, should be required of *all* applicants for State medical relief.

(4) That there are no logical grounds for drawing any distinction between medical and other relief when granted by the State.

(5) That the medical treatment of paupers or State patients by provident institutions is strongly to be condemned. That what is done for the State should be paid for by the State *at an equitable rate*. That the payments accepted at provident dispensaries in order to encourage individual thrift cannot form any sound basis for State payment for the medical charge of the destitute.

(6) That a system of "part time" is better for the interests of the sick poor. That it is better for the latter to be attended by the same doctors as the rest of the community, rather than by officials appointed to attend only on the poor. That a system of "part time" medical officers lessens the distance that has to be traversed by applicants for medical relief, a matter of great importance in country areas.

(7) That the Poor law Medical Service, however it may be coördinated with the Sanitary Medical Service, should be kept separate from the latter.

The Astley Cooper Prize for 1910 has been awarded to Professor E. H. Starling, F.R.S., for an essay upon the Physiology of Digestion, Gastric and Intestinal.

THE LANCET.

LONDON: SATURDAY, JULY 23, 1910.

The Work of the Imperial Cancer Research Fund.

THE Annual Report of the Imperial Cancer Research Fund was presented at the ninth meeting of the general committee on July 20th, and, as will be seen by references to our account of the general meeting of the Fund, exhibited many points of interest and hope for the future. We are glad to see that although the expenses during the year exceeded the income from interest on capital by more than £1600, yet there remained a balance to the good, because the contributions towards the general fund during the year were larger than in previous years, and because no expense has been incurred in the publication of a scientific report during the year. We have mentioned the financial aspect of the Fund first, because sufficient funds are essential for the proper prosecution of the study of malignant disease. The increase in receipts also shows that the public are appreciating more the value and the importance of the work of the Fund. It is to be hoped that further and ample financial assistance will be given, so that the study of this most important disease may be continued without hindrance. Cancer is still a terrible mystery, but assiduous research is shedding light on dark places. The work must be steadily and hopefully continued, and just as the awful evils to be combated are evident, so is it evident that a sequence of scientific labour can only be maintained at heavy expense.

It is a little difficult to select from the extensive work carried out by the director of the Fund and his assistants that which is of the most importance and interest, for in one way and another everything that has been done carries us farther in the direction of attaining to a complete knowledge of cancer. The question of the heredity of malignant disease has always excited much attention, and till a few years ago it was firmly held that cancer was distinctly hereditary; but statistics, when carefully examined, failed to substantiate this view. It will be therefore of no little interest to learn the results of the breeding experiments which have been made in the laboratories of the Fund, and we see in this respect the great advantage of employing short-lived animals for studying the possible influence of heredity. The breeding experiments have now been in progress for five years, and nearly 2000 animals of known age and ancestry have been obtained. The numbers are accordingly sufficiently great to permit of exact analysis for ascertaining the influence of ancestral constitution; and it has been found that in cases where malignant disease has occurred both in a mother and in her offspring the figures show a higher incidence in those born before the mother developed the disease than in those born after. These statistics are clearly and strongly opposed to the idea of contagion, but the director is prudent enough to draw no hard-and-fast deductions from them. The situation is put out as one of interest, and those who read are at liberty to draw their own conclusions. Another question of great general interest has been dealt with—viz., the relation of the tumour to the organism primarily attacked. A number of experiments are recorded which serve to elucidate this relationship in an interesting manner. The transplantation of a spontaneous tumour into the same animal is shown to be almost invariably successful, although transplantation into other animals of the same species may fail in a large number of cases; and this difference obtains whether the other animals are normal, either old or young, or even if cancerous. Thus, in 55 re-inoculations of affected animals with their own tumours the results in all cases but one were positive, whereas in 77 inoculations of spontaneous tumours into other spontaneously affected mice only five positive results were obtained. If transplantation of a spontaneous tumour be practised under the most favourable conditions, the successes rarely reach 30 per cent. From observations such as these we must conclude that animals naturally the subject of cancer do not suffer from it because they present a soil uniformly favourable for the disease, but rather because the circumstances associated with the appearance and growth of cancer are, in each case, peculiar to the individual attacked, which circumstances need not be similar to those existing in another individual. Moreover, the experiments go far to prove that the cancer cell, though highly dangerous to the individual in which it arises, is relatively harmless to other individuals.

It is noteworthy that both for spontaneous tumours and for tumours which can be propagated it has been shown that young animals afford a more suitable soil for transplantation than do older animals, although the latter are much more prone to develop cancer naturally. Tumours growing in a living animal can be protected from all outside influences, and when they are propagated in large numbers of young mice of the same strain, the conditions can be made as constant as it is possible to devise. It is therefore interesting to note that the tumour cells possess a relative constancy in their general biological properties, but at the same time exhibit an inherent tendency to vary, in spite of the constancy of the environment, and therefore, apparently, for reasons independent of it. A large proportion of the work of the Fund has been devoted to the reactions conferring resistance to the transplantation of cancer, to those reactions responsible for the disappearance of transplanted tumours, and to the natural cure of spontaneous malignant growths. It is now possible in mice, under given experimental conditions, to prevent a secondary transplantation for certain tumour strains. This result has been obtained by inserting between the primary and secondary transplantations an inoculation of a very rapidly growing tumour showing only transitory growth. A similar result can also be obtained by the implantation of tumours growing much more slowly, and liable to spontaneous absorption, as well as by an inoculation of normal mouse-tissue. By similar methods the growth of the primary transplanted tumour may be greatly hindered or even brought to a standstill. These results must not be confounded with successful vaccination against spontaneous cancer, for animals perfectly

protected against the repeated inoculations of cancer may develop tumours of their own. It must also not be forgotten that these results obtainable in mice cannot be looked upon as applicable directly to the human subject. They are enormously suggestive, but do not, at any rate in our opinion, point the way as yet to practical therapy. The experiments have fully shown that the problems presented by spontaneous tumours are far more difficult than those of transplanted cancer, for the methods successful in preventing or retarding the growth of transplanted tumours have been utterly without action on the continued growth of spontaneous tumours.

From what we have said, as well as from Mr. BALFOUR'S eloquent exposition of the matter at the annual meeting, reported elsewhere, it is clear that progress has been made; definite ideas are being obtained as to the conditions under which malignant tumours grow. The continuation and the extension of the work of the Fund are in consequence urgently called for, and we trust that the public, obtaining this assurance from medical men, will facilitate by their purses the efforts of the Fund. In addition to Dr. E. F. BASHFORD, many distinguished men have been working in the laboratories of the Fund, and many of them have come from foreign countries; while in support of its international character the Fund continues to distribute tumours and other material for investigation to many laboratories abroad as well as at home. The value of the work done by the Fund is shown by the fact that several of the foreign workers in the laboratories have, at the termination of their labours here, received important pathological posts abroad. The Imperial Cancer Research Fund fully justifies its existence, and if it be supported as it should be, we may look forward with confidence to the results which it will achieve. And a demand for patience, which Dr. BASHFORD does not make but which we may make for him, is legitimate. The problem is a vast and complex one, and the road to the truth has to be hewed through obstacles of many kinds.

Medical Education in the United States of America.

THE standard of medical education has changed greatly within the last hundred years, and the improvements in teaching have been enormous, but even at the present day notable differences exist in the quality of the teaching given at different schools of medicine, and perhaps even greater differences are to be found in the equipments of the various schools. The process of levelling up has for years proceeded in this country, but even with us the standards attained by different schools are not identical, although the General Medical Council prevents gross disparities; while vast variations undoubtedly exist amongst the medical schools of the United States of America. This has been brought out by the Carnegie Foundation for the Advancement of Teaching in a manner which has proved too frank for some susceptibilities.[1] Some five years ago, it may be remembered, the Carnegie Foundation was established and provided with an endowment for the purpose of increasing the salaries of teachers in the colleges and universities of the United States. The remuneration of the instructors in higher education is nearly everywhere absurdly small, and the value of such an endowment, if properly administered, should be great. A difficulty, however, immediately confronted the trustees, for it was recognised that under the name of colleges many institutions existed which were concerned mainly with secondary education, and not with truly professional or technical instruction. In fact, we are told that this is true of a large majority of all the institutions in the United States bearing the name of "college." In conditions such as these the trustees of the Carnegie Foundation, before making grants to teachers in pursuance of the terms of the Trust, felt themselves compelled to institute an inquiry into the work of the colleges and universities in the area with which they had to deal. The trustees have accordingly published a report detailing the results ascertained during a visit to 150 different medical schools, a report which will prove of great value both to the institutions concerned and to the public. Medical education is a matter in which the public have every reason to be deeply interested, and the more information on the subject that can be supplied to the public the less hold will quackery have upon them. We can believe that some of the institutions have resented the curiosity of the trustees, but this was inevitable. A similar inquiry into the state of medical education in Great Britain, France, and Germany is to be made, so that experiences and performances in medical education may undergo international comparisons.

This study of the transatlantic medical schools has shown that for the last 25 years past there has been in the United States an over-production of uneducated medical practitioners, in utter disregard of the public welfare. When it is stated that in the United States there are four or five times as many medical men in proportion to the population as there are, for instance, in Germany, it is clear that the number of medical men is unnecessarily large. Many of the men are ill-trained, and this is mainly due to the existence of a very large number of medical schools started for the purpose of earning a profit for their founders, and supported by advertisements, by which young men are seduced from industrial occupations into the study of medicine. Until a short time ago it was possible for the managers of a medical school to derive no small amount of gain from it, and still, perhaps, do their duty by their pupils and the public, for the instruction was mainly given through lectures and the working expenses were small. But, as the need for laboratory work has become more keenly felt, the expenses of any medical school worthy of being called efficient have greatly increased. It is obvious that many of the medical schools in the United States must be inefficient, for nearly half of them have an income of less than £2000 a year each. It is the opinion of the trustees of the Carnegie Foundation and their advisers, from the consideration of the facts contained in this report, that true progress in medical teaching in the United States will require a smaller number of schools, but they will have to be much better equipped than are the majority of schools at present. So far as the public are concerned, it would be better that fewer physicians should be graduated every year, but they should be better educated and better trained. For one great disadvantage under which medical education

[1] THE LANCET, July 9th (p. 137) and 16th (p. 181), 1910.

labours in America—and it is not entirely unknown here—is the unsatisfactory state of the preliminary education of the medical student. Medicine is now so complex a subject, and it depends so greatly on other sciences, that a student who enters it ill-provided with general knowledge is heavily handicapped in his professional studies, though teachers all over the world are perplexed in attempting to decide where general education should stop and professional education begin. Even in the short time, however, during which the Carnegie Foundation has been acting some beneficial results have been attained in the country of its origin. Some colleges, finding themselves unable to carry on a medical school on the lines required by the present state of medical science, have decided to discontinue their medical department, and in other cases, where two ill-provided and competing schools have little more than managed to exist, they have united into a single school, far better qualified to fulfil efficiently the function of medical education.

The difficulties in the future are great. Every one of the United States possesses the right to make what laws it chooses for the instruction and examination of medical students, and to this fact must undoubtedly be attributed the large number of medical schools existing. For instance, in the State of Illinois there are 14 distinct medical schools, and Missouri has 11. When the public are more alive to the importance of the proper training of medical men, they will insist on the sufficient equipment of all medical schools. It is difficult to imagine the lack of facilities for teaching which were discovered in some of the colleges by the visitors from the Carnegie Foundation. In many we hear that anatomy is taught almost entirely by tutorial classes, or "quiz-classes" as they are called; subjects for dissection in some cases are utterly wanting, and in others they are provided in such small numbers as to be of very little value. Not infrequently, we are told, "the school skeleton" is defective, and the students possess no "bones" of their own. In physiology the teaching is in a majority of the colleges confined to lectures, and practical work is unknown. Sometimes some new physiological apparatus is shown, but it has been bought merely to satisfy the requirements laid down by the law and is unused. Chemistry appears to be equally unprovided for; we hear of absence of running water at the desks and of a single set of reagents being provided for a whole class. In the teaching of pathology very little use is made of necropsies. We are told that at one college the students witness a "few" necropsies in the course of the year; at another "four or five" are to be seen. Bacteriology is also much neglected. In clinical teaching there appears to be great need for reform. In many instances the student has nothing personally to do with the cases; he merely listens to what is said about them. In many of the colleges clinical facilities are almost wanting, in others only a few beds are available. In one "medical university" we learn that the top floor of the building is the "hospital," and when it was inspected it contained only two patients. Sometimes the clinical opportunities depend on a certain lecturer, and if he resigns from the school the beds under his authority can no longer be used for the instruction of the classes. The out-patient departments, or "dispensaries," as they are usually called, are often very thinly attended, which is excellent hearing in one way, as it points to the fact that, at any rate away from the great centres, the question of hospital abuse is not so acute in the United States as it is with us. But the position has its educational difficulties. For instance, at one school the visitors were told that there was "a dispensary room, and almost every day someone comes." When in spite of these inadequate provisions we learn that the examination results are often exceedingly good, it is obvious that the examinations fail in being not sufficiently practical.

As has been said, and as might have been guessed, the report of the trustees of the Carnegie Foundation has given offence in some quarters, but recognising, as we do, the splendid work that is done in the leading medical schools of the United States, we cannot help believing that such drastic criticism will do good. We have referred mainly to the schools in the United States in our remarks, but the position is similar in Canada, where the smaller schools offer a medical education that may undoubtedly prove a serious danger to the public, but where the two great schools, McGill and Toronto, are deserving of the high praise accorded to them.

Industrial Perils.

THE report of the Departmental Committee appointed to inquire into the dangers attendant on the use of lead in the arts and industries, and into the question also of injury to health arising from dust in the manufacture of earthenware and china, was issued within a short period of the publication of the annual report of the Chief Inspector of Factories and Workshops for the year 1909. It will therefore be convenient to consider both reports simultaneously. The report upon the use of lead compounds in pottery is a highly interesting document, in which the question of lead poisoning is dealt with at very considerable length, and the statistics which the committee had before them showed a very marked decrease in the number of cases for the year 1909. In 1896 there were 432 cases reported in the United Kingdom. In 1908 the number was 117, and in 1909 it had fallen to 58. The committee came to the conclusion that lead poisoning was largely to be accounted for by defective conditions of labour, especially when not associated with adequate exhaust draughts. Undue pressure of work was also held to be an important factor in producing an outbreak of the disease, while the report also mentions that the committee arrived at the belief that the susceptibility of any class of workers to contract lead poisoning was, without doubt, enhanced by any insufficient nourishment of the physical system. On this account Dr. A. A. HILL, one of the medical witnesses, in his evidence referred to poverty as predisposing to attacks of plumbism. Sir THOMAS OLIVER and other witnesses, carefully selected for expert knowledge, strongly advocated the provision of milk to workers in lead processes before they commenced their morning shift. The necessity of this had, it was stated, been recognised by certain manufacturers, who had voluntarily made this provision for years. The committee made many recommendations dealing with the medical

examination of lead-workers. It was thought, for example, that opportunities should be given to certifying surgeons to obtain in difficult cases the assistance of specialists, approved and remunerated by the Home Office. Questions of ventilation, and overalls, and head-coverings were considered, as well as such large matters as the effect of work in lead processes on women and its connexion with miscarriages. A proposal for a further period of abstention from work after child-birth gained approval. Other matters dealt with included the temperature of work-rooms, sanitary arrangements, inquests on fatal cases of lead poisoning, inspection, and supervision. One of the most interesting recommendations which was formulated concerned the use of milk, on the value of which so much stress had been laid by certain witnesses. A rule was proposed that a supply of that article should be provided for all women and young persons working in scheduled lead processes who commenced work before 9 A.M.

In his annual report, Dr. B. A. WHITELEGGE, the Chief Inspector of Factories and Workshops, refers to the work of this Departmental Committee, and regards the remarkable reduction in the returns of lead poisoning in the period 1908–09 as being due to their appointment. The committee began their inquiry in July, 1908, and it is difficult to avoid the conclusion, Dr. WHITELEGGE writes, that this led at once to increased attention to the risks of the workmen, to better measures for preventing risk, and to closer supervision of the daily and hourly details upon which the efficiency of all such precautions largely depends. Dr. WHITELEGGE'S bureau is itself an example of the value of constant supervision. For example, amongst other official reports the results of which the Chief Inspector summarises is that of the Humidity Committee appointed to suggest recommendations as to the relative degree of moisture in humid textile factories consistent with a healthy environment. These recommendations are, however, not yet to hand, but in a preliminary report a statutory limit for the reading of the wet-bulb thermometer and a simpler requirement as to the minimum difference between the wet- and dry-bulb readings are foreshadowed. Whatever standards may ultimately be proposed, there is evidently a need for a simple and accurate form of hygrometer which can be read by unskilled persons. Further reports deal with the recommendations of the Coroners Committee bearing upon work of the factory department, the inquiry by Dr. S. MONCKTON COPEMAN for the Local Government Board into the dangers arising in the transport and storage of ferro-silicon, and the work of the factory inspectors in connexion with the investigation made by Dr. REGINALD A. FARRAR with regard to the manufacture and sale of rag flock. All these matters have been dealt with in our columns at various times, and particularly when the official reports were published, while Dr. WILSON HAKE'S article on the poisonous gases of ferro-silicon, which will be found in another place in this issue, confirms in every way the regulations suggested by Dr. COPEMAN, and now substantially adopted by the Board of Trade. Dr. WHITELEGGE refers to an interesting point in connexion with the proposal to enforce the washing of dirty rags. This process if adopted would, he says, obviously improve the conditions under which the rags are handled in factories by removing or lessening the dust. The suppression of dust in various industries has received considerable attention, and it is interesting to note that in the campaign against injurious dust two important advances were made in 1909, one directed to the rapid and accurate quantitative estimation of dust and the other to the devising of improved means of exhaust for its removal.

An interesting innovation this year in connexion with factory legislation has been the exhibition, in response to an invitation from the Belgian Government, of recent advances made in connexion with the Factory, Mine, and Explosives Departments of the Home Office, at the International Exhibition at Brussels. Some of these exhibits will be shown again at the Turin Exhibition in 1911, and it is hoped that they will form the nucleus of a permanent collection similar to the museums of safety appliances already existing at certain of the leading continental cities.

Annotations.

"Ne quid nimis."

ANNUAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE seventy-eighth annual meeeting of the British Medical Association will be held in London next week under the presidency of Mr. H. T. Butlin, President of the Royal College of Surgeons of England, consulting surgeon to St. Bartholomew's Hospital. On Tuesday Mr. Butlin will deliver his presidential address in St. James's Hall, Great Portland-street, at 8.30 P.M.; on Wednesday Dr. J. Mitchell Bruce will deliver the address in Medicine; and on Thursday Mr. H. G. Barling will deliver the address in Surgery. The two latter addresses will be given at 12.30 P.M. in the buildings of the University of London, South Kensington.

The work of the sections has been arranged for Wednesday, Thursday, and Friday, and will be conducted in the Imperial Institute, commencing at 10 o'clock each morning. The sections, which number 21, are as follows: Anæsthetics, Anatomy, Bacteriology, Dermatology, Diseases of Children, Gynæcology and Obstetrics, Laryngology, Medical Sociology, Medicine, Navy, Army, and Ambulance, Odontology, Ophthalmology, Otology, Pathology, Pharmacology and Therapeutics, Physiology, Psychological Medicine, Radiology and Medical Electricity, State Medicine, Surgery, and Tropical Medicine.

The Pathological Museum will be held in the Elementary Physics Laboratory, South Kensington, and the exhibition of foods, drugs, instruments, &c., in the Great Hall and West Gallery of the Imperial Institute. Religious services will be held on Wednesday in Westminster Abbey (at 3 P.M.) and in Westminster Cathedral. The annual dinner will take place on Thursday, at 7.30 P.M., in the Connaught Rooms, Freemasons' Hall, Great Queen-street. There will be a conversazione at the Guildhall on Wednesday, at 8.30 P.M., and a reception by the Metropolitan Counties Branch at the Natural History Museum, on Friday, at 9 P.M. Garden parties are also arranged, as well as a ladies' dinner on Thursday, at the Hotel Cecil, Strand.

FERRO-SILICON.

THE dangers of ferro-silicon are clearly set forth in a communication to our columns this week by Mr. H. Wilson Hake, who has made a careful experimental investigation on behalf of the Local Government Board of the properties of this curious alloy. It is well that Mr. Hake has been able to draw definite conclusions in regard to the nature and origin of the poisonous emanations from this substance, inasmuch as its application to steel manufacture is increasing year by year, the present demand for it amounting to about 4000 tons, which are imported into England from France. It is desirable, therefore, that some precautions should be enforced in regard to the handling, transport, and storage of ferro-silicon. Certain recommendations have already been issued in a report issued as a supplement to the report of the medical officer of the Local Government Board for 1908-09 which relate to these points. As Mr. Hake explains, the demand for ferro-silicon has arisen because its addition to steel imparts to it, among other valuable physical properties, a high tensile strength when present to the extent of rather less than 1 per cent., together with small proportions of carbon and manganese. Silicon steels are used amongst other applications for motor-car construction. The compound ferro-silicon is in reality a means of incorporating the element silicon into steel. It is made by heating together in an electric furnace steel turnings, quartz, and coal, the proportion of iron varying according to the grade of ferro-silicon required. The coal reduces the quartz to silicon, which then forms an alloy with the iron. There is no reason for believing that absolutely pure ferro-silicon or iron silicide has any poisonous property in the same way that the crude substance has. In other words, the poisonous emanations of commercial ferro-silicon are due to impurities, arsenical and phosphoretted gases, derived from the ingredients used in its manufacture. Calcium phosphate, which is present in the coal and quartz used, becomes, as Mr. Hake points out, reduced to calcium phosphide; arsenic, which is present in both coal and iron, appears as calcium arsenide. The former gives phosphoretted hydrogen in contact with water or moist air, and the latter arseniuretted hydrogen, both of which are intensely poisonous gases. The volume of gas given off varies, and Mr. Hake finds that certain low-grade ferro-silicons containing from 10 to 35 per cent. of silicon yield on an average 0·2 cubic foot per ton, while certain high-grade ferro-silicons containing from 70 to 96 per cent. of silicon yield from 2·1 to 5·7 cubic feet per ton. Intermediate grades containing from 42 to 52 per cent. of silicon yield the largest amount of poisonous gases—namely, from 2·1 to 16·8 cubic feet per ton. When, as Mr. Hake points out, it is remembered that phosphoretted hydrogen acts fatally if present in so small a quantity as 2½ volumes of the gas in 10,000 volumes of air, and that arseniuretted hydrogen is scarcely less dangerous, it will be seen that the atmosphere of a cabin on board ship might, under certain conditions, very rapidly assume a toxic character if ferro-silicon forms a part of the cargo, and that this can occur has been sadly demonstrated by fatalities already placed on record. It is to be hoped, therefore, that the precautions recommended in the report made on behalf of the Local Government Board by Dr. Monckton Copeman and officially adopted by the Board of Trade will be carefully regarded. They are as follows:—

1. Ferro-silicon should not be sent out from the works immediately after manufacture, but, after being broken up into pieces of the size in which it is usually sold, should be stored under cover, but exposed to the air as completely as possible, for at least a month before being despatched from the works.

2. Manufacturers should be required to mark in bold letters each barrel or other parcel of ferro-silicon with the name and percentage grade (certified by chemical analysis) of the material, the name of the works where it is produced, the date of manufacture, and date of despatch.

3. The carriage of ferro-silicon on vessels carrying passengers should be prohibited. When carried on cargo boats it should, if circumstances permit, be stored on deck. If it be considered necessary to store it elsewhere, the place of storage should be capable of being adequately ventilated, and such place of storage should be cut off by air-tight bulkheads from the quarters occupied by the crew of the vessel.

4. This regulation should apply to the transport of ferro-silicon on river or canal barges as well as on sea-going vessels.

5. Storage places at docks or at works where ferro-silicon is used should have provision for free access of air, and should be situated at a distance from workrooms, messrooms, offices, &c.

OPHTHALMIA NEONATORUM.

WE have repeatedly called attention to the problem presented by ophthalmia neonatorum, but a return to the subject needs no apology. The disease is said to cause 10 per cent. of all cases of blindness in this country. It was found to be responsible for 42 per cent. of cases in the Sheffield School for the Blind, and for 36 per cent. of cases in the London County Council Blind Schools. It has been estimated by Mr. M. Stephen Mayou, from the Census statistics for England and Wales, that there are now about 3000 children under the age of 15 years blind from ophthalmia neonatorum. With records such as these at hand it would be surprising if no public body interested in the health and welfare of the community were to make some effort to remove the disgrace attendant upon what is admittedly a preventable condition. The consensus of opinion of those qualified to judge is in favour of notification of the disease, and it is gratifying to know that steps in this direction, already taken in Germany, Austria, France, Switzerland, and 15 States of the United States of America, have now been taken also in Chester, Stoke-on-Trent, and all other towns in the Potteries district. But this is not enough. It is not fitting that the metropolis should lag behind the provinces in a matter which affects it at least equally, and we are glad to know from information kindly supplied to us by the medical officer of health of the borough, that the matter is now receiving careful consideration by the public health and housing committee of the metropolitan borough of Poplar. Whilst adducing evidence of the need of notification, evidence which is already familiar to our readers, they rightly carry the inquiry a step further. Notification alone would be of little avail if the machinery were not provided for dealing adequately with the cases and preventing lapses due to carelessness, ignorance, and other causes. The council of Poplar has one health visitor, and if the whole of her time were devoted to visiting the 5000 infants born annually in the borough, one visit to each, the only way in which cases of ophthalmia neonatorum could be discovered without notification, would necessitate the regular payment of 20 visits per day on every working day in the year. At present midwives under the rules of the Central Midwives Board are instructed to call in a medical man if the child's eyes are inflamed, ever so slightly, and to inform the local supervising body—in London the London County Council—that they have done so. There is, however, at present no machinery to ascertain how many midwives fail in this respect, whereas if the disease were compulsorily notifiable to the medical officer of health his visitors would find this out and the medical officer of health would thus help to raise the standard of work of the midwives. Moreover, he and his staff could see that the child was adequately treated, locally or at an ophthalmic hospital. All cases, however, are not attended by midwives, and it should be the duty of the medical practitioner, head of family, nearest relatives, any person in charge of the patient, or, in default of these, of the occupier of the building, to report the case, any failure to comply with the law entailing an adequate penalty, pecuniary or otherwise. As regards the legal aspects of the question, it would appear that laws already promulgated

meet the case. The Children Act (1908) states that "if any person over the age of 16 years, who has the custody, charge, or care of any child or young person causes such child to be ill-treated or neglected in a manner likely to cause such child unnecessary suffering to his health (including injury to or loss of sight) that person shall be guilty of a misdemeanour." Under the Public Health Act, 1875, any local authority may make provision for the conveyance to a hospital or other place of destination, of persons suffering from any infectious disorder. Under the Infectious Diseases (Notification) Act, 1889, the local authority may pay the expenses of a person in hospital, even though such may not be a pauper, and may provide nursing attendance on patients who cannot be removed to hospital. That money so spent would be true economy is shown by the fact that one Chester boy who is being educated at the Liverpool School for the Blind (Wrexham Branch) under the Elementary Education Committee (Blind and Deaf Children) Act costs the city £19 16*s.* per annum.

THE HOLIDAY HUDDLE.

IT is easy enough to account for the absurd position that most people's holidays are packed into the same period of opportunity (which is generally the month of August or thereabouts), but it is not so easy to see why such a silly arrangement is allowed to continue. The time arrangements of the schools, we are told, must be endured. Parents must wait until their sons and daughters break up at school before they can embark upon the general holiday, and the result is that everyone is bound to seek holiday in exactly the same season because the schools all break up and start again at the same times. There would be no objection to this if the holiday extended over a longer period than it does at present—if, instead of being confined to, say, six weeks, it was extended to three months, which would give a much greater latitude in which to choose the time for going away. If, for example, the terms at the University of Cambridge were chosen, the summer holiday would extend from June 24th to Oct. 1st, which gives a vacation period of three months, out of which a suitable time could be chosen for a stay in the country or seaside. As it is, what is called the season at seaside and other places is compressed into a month or six weeks, and the inconvenience of this limited time must seriously appeal to everybody. Accommodation is expensive, hard to get, and crowded, the railway companies are at their wits' ends to cope with the sudden demand upon them, and altogether the discomforts and inconveniences are so great consequent upon everybody going away at the same time that not a few have given up the idea of a holiday in absolute despair. The whole thing is a worry from beginning to end, and it is doubtful whether under these manifest disadvantages a holiday is a holiday in its proper sense at all. It is pitiful to see the inconvenience and cruelties which families have to put up with because they are all forced to go away at the same time. It is also absurd that the proprietors of hotels, apartments, and so forth, are not able to enjoy a longer patronage than that which some two months afford; and, in short, it would be to the general advantage of all concerned if the holiday were not made such an intensely concentrated occasion. And all this submission to an irksome wearisome time, which, on the contrary, should be made as pleasant and enjoyable as possible in the interests of the health of both parents and children, is due to the arbitrary ruling of the school authorities. Surely there needs to be a revision of our methods of taking holiday, and the remedy cannot be far to seek or an impracticable one. At the risk of curtailing the school holidays at Easter and at Christmas, it seems feasible to suggest a straightforward three months' holiday in the summer, a period which gives some room in which to choose a time for going away, with all the unquestionable advantages that such a latitude would allow. The English summer, which is not always the compost of rain, wind, gloom, and cold which we are enduring this year, is not concentrated in August; it spreads over what can be the glorious months of June, July, and September, and earlier months have the advantage of giving a maximum of the sun's health-giving rays.

MEDICAL LIBRARY ASSOCIATION OF GREAT BRITAIN AND IRELAND.

AS has already been announced in THE LANCET of July 9th, p. 131, the annual meeting of members of this association will be held at the Royal College of Surgeons of England on Tuesday, July 26th, at 4.15 P.M. Open meetings will be held in the Mechanical Lecture Theatre (old School of Science), South Kensington, S.W., on Wednesday and Thursday, July 27th and 28th, at 9 A.M. On Wednesday the President (Professor W. Osler) will deliver an address, and Mr. Victor G. Plarr, Librarian, Royal College of Surgeons of England, will read a paper on "The Catalogue of the Royal College of Surgeons of England." On Thursday Mr. C. R. Hewitt, Librarian, Royal Society of Medicine, will read a paper on "The Organisation of a Medical Library"; Mr. H. M. Barlow, Assistant Librarian, Royal College of Physicians of London, will make a few observations on "The Medical Library Association"; and Mr. A. L. Clarke, Assistant Editor and Cataloguer, Royal Society of Medicine, will speak on "Abstracts and Extracts in General and Professional Literature." An exhibition of rare and interesting books, papers relating to medical libraries, &c., will be held from Wednesday, July 27th, until Friday, July 29th. Communications should be made to Dr. I. Walker Hall, Pathological Department, University of Bristol, or to Mr. Cuthbert E. A. Clayton, Medical Library, University of Manchester, Joint Honorary Secretaries.

BRIGANDAGE NEAR FLORENCE.

DICKENS, writing as an "Un-Commercial Traveller" in the "sixties" of last century when London was terrorised by the garrotter, alluded to "that quarter of the Abruzzi which abuts on Waterloo Road." In the day now passing the Florentine may, with not less truth, refer to that "landslip from Calabria which collides with the City of Flowers." Two gentlemen from Boston, U.S., occupants of a villa off the road between Pontassieve and Vallombrosa, accompanied by two ladies, were returning from Florence in their motor-car when the chauffeur came suddenly to a stop, having remarked an enormous "macigno" (paving-stone) laid across the narrow road. The gentlemen were about to alight and remove the obstacle when two men, their faces partially bandaged, emerged from a thicket, and, levelling rifle and revolver at the passengers, demanded all the money they had got. Resistance was useless, the gentlemen being unarmed; so the elder of them (they were two brothers) handed them his pocket-book containing 220 francs (£8 15*s.*) and the younger the sum of 50 francs (£2). Not satisfied with this the brigands detained the gentlemen as hostages, while the chauffeur and the ladies continued their journey to the villa, not many hundred yards off, to bring back what money they could. Returning with 600 francs (£24) they gave it to the malefactors, who made off immediately, previously warning the gentlemen of the fearful vendetta awaiting them if they informed the police. Next day, however, the victims appeared at the Questura in Florence and their narrative at once put the constabulary and carabineers

on the track of the brigands, with what result has yet to be told. The incident has made a profound impression on all Tuscany as proving once more that Italy, even in a favoured resort of the valetudinarian and the votary of literature and art, is still unsafe—person and purse, life and limb, being equally at the mercy of the malefactor in city and suburb. Misery and mendicancy, prompting to aggression and robbery, are still, it seems, beyond her power to cope with—the foreign arrival, even if he finds that his luggage has not been pillaged *en route*, or that his bedroom has not been visited by the "hotel-rat" (*alias* "international thief"), being never sure, if he ventures abroad, that he will not be made to "stand and deliver" by the time-honoured methods of a Dick Turpin or a Captain Macheath. Where in London, or Paris, or Berlin, he is always within immediate hail of a policeman or constable, in Rome itself, to say nothing of provincial capitals like Naples, or Florence, or Milan, he is left (so far as representatives of public order are concerned) in an "isolation" by no means "splendid," having to put up with whatever violence or exaction the "sturdy beggar" or highwayman (professional or amateur) may be pleased to let him off with. Even if arrested the malefactor can afford to smile at the penalties of the law. The prison has no terrors for him, knowing, as he does, that it will cease to shelter and maintain him long before his "time" is up—to make room for others crowding in. Flogging has been suggested as likely to prove a deterrent no less efficacious with the Italian footpad than with the English garrotter—both of them are peculiarly sensitive (the former in particular) to physical pain. But it seems there is an irresistible aversion from the "cat" as only too reminiscent of the Austrian occupation, and so the legislature, importuned by the Association for Promoting the Influx of Foreigners, is still at its wits' end for a means of minimising an evil which tells disastrously on Italy in two ways—on her credit as a first-class Power and on her attraction for that main source of her revenue, the "paying guest."

THE ASSOCIATION OF BRITISH POSTAL MEDICAL OFFICERS.

THE annual banquet of the Association of British Postal Medical Officers was held at the Whitehall Rooms, Hotel Métropole, on July 14th, the President, Dr. George A. Mason, being in the chair. Among the guests were the Right Hon. Herbert Samuel, M.P., His Majesty's Postmaster-General, Sir Joseph Walton, Bart., M.P., Sir Dyce Duckworth, Bart., Sir Matthew Nathan, G.C.M.G., Sir Edward Troup, K.C.B., Sir William Collins, M.P., the Right Hon. Eugene Wason, M.P., and Surgeon-General W. L. Gubbins, C.B., M.V.O., Director-General of the Army Medical Service. The usual loyal toasts having been honoured, that of "Our Imperial Forces" was proposed by Sir Joseph Walton and responded to by Surgeon-General Gubbins, who welcomed the sentiment behind the term Imperial Forces. He acknowledged the debt which the army owed to the postal service, and stated that their work during the war in South Africa was beyond all praise. The toast of "The Houses of Parliament" was proposed by Sir Dyce Duckworth, who entered a protest against the all-night sittings and the prolonged speeches in the House of Commons. Sir William Collins, in his reply, pointed out that Parliament was becoming more and more concerned with the health of the nation. He would welcome more medical men in Parliament. The health of the Right Hon. Herbert Samuel, M.P., was proposed by the chairman, who referred to the difficulties of the work of postal medical officers and to the cordial relations existing between previous Postmasters-General and the association. He mentioned with approval the policy of the late Postmaster-General in recognising the Association of the Postal Employees. Mr. Samuel, in his reply, referred to the great growth of the medical service of the Post Office, which to-day numbered 3320, compared with 670 only six years ago, so that the medical officer was more easily accessible to the members of the staff. In regard to pulmonary tuberculosis, he stated that the Post Office would take its share in the preventive measures directed against this disease and endeavour to render sanatorium treatment available for its employees. He urged upon the medical officers that they should strongly recommend all postal servants to join the Post Office Sanatorium Association, the subscription being only 2*s.* a year. At present only one-quarter of them belonged to it. He announced that a departmental committee was at present investigating the condition of telegraphists' cramp with a view to its eradication. The toast of "The Association of British Postal Medical Officers" was proposed by the Right Hon. Eugene Wason and replied to by Dr. John Matheson. Sir Edward Troup, Permanent Under-Secretary of the Home Office, proposed the toast of "His Majesty's Post Office," which he described as the greatest business concern in this country. Sir Matthew Nathan, in replying, paid a tribute to the work of the medical officers. Other toasts were those of "The Guests," "The Secretary," and "The Chairman." An attractive musical programme was provided, under the direction of Mr. C. Graham Grant, the proceedings being continued to a late hour.

CHILDREN AND THE TRAFFIC OF THE STREETS.

THE greatly accelerated traffic of the streets introduced by motor vehicles has brought fresh perils to the pedestrian, and now a great deal of care needs to be exercised in regard to choosing a safe time to cross a busy line of traffic. The provision of more refuges or islands seems to be imperative, although we know how loth our street authorities are to introduce into the road anything which has a tendency to obstruct the vehicular stream; still, the safety of the pedestrian public should receive an equal consideration. The public, however, is rapidly adapting itself to the new traffic: is acquiring, in fact, that curious faculty, the sense of traffic, with its new meanings. And on the whole the steady development of this sense may be trusted to reduce in time the accidents which arise now partly from the swiftness of motor vehicles and partly from a failure on the part of the public to realise the meaning of their speed. The sense of traffic should be cultivated by all those who are constantly in contact with it, and the education might be begun early with advantage. Children especially should be impressed with the meanings of motor traffic and should be instructed particularly as to the rules to be observed when they are in the midst of it. The motor-car on the country road has claimed many a child victim owing sometimes to the stupidity of the child, sometimes to his ignorance, and not infrequently to a silly game of daring which it played. The game is known colloquially as "doing your dags," and was once more frequently played than it now appears to be. A crowd of children on spying an approaching motor used to dare one another to run across its path, and the one who ran last across the road before the motor passed was senselessly accredited the winner of the game. The "dags" of the others had been "done." We hope this "game" has been stopped. We should like to see street rules taught to children in this country as is done in Berlin. The adoption of such a scheme would have the most encouraging and valuable results. Parents and guardians should be called upon to read rules respecting the crossing of roads and so forth to the children under their care, and to explain to them their practical

observance. A correspondent has favoured us with a copy of the rules just referred to, and we reproduce them in the hope that the idea will appeal at home. The rules are as follows:—

1. Never play in a road where there are tramways or many carriages passing by.
2. When you are going to cross a road always look out for approaching tramcars, motors, and other carriages. Never run across a road just in front or just behind a tramcar, motor, or other carriage. Wait until the road is clear, and then cross over quickly by the shortest way.
3. When you are getting down from a tramcar never go round close behind to cross the road, but wait until the car has gone on. Then you can see whether a tramcar, motor, or other carriage is coming up fast.
4. Do not run after any carriage or cart nor hang on to it, for this is very dangerous and is strictly forbidden.
5. Never get on or off a tramcar or omnibus whilst it is moving, but wait until it stops. The getting up and down whilst it is moving is dangerous to life and forbidden by the police.
6. Do not cross the road where there are many carriages, but find out a place where there are fewer carriages going past.

We commend these rules for careful consideration with a view to their being added to the child's curriculum. The observance of the instructions there laid down may likely enough save life and besides make more acute "the sense of traffic" which adds to the power of self-preservation.

RECENT URBAN MORTALITY IN THE UNITED KINGDOM.

THE returns of the Registrar-General show that during the first half of this year the crude annual rate of mortality in the 77 largest towns of England and Wales, with an estimated population of nearly 17,000,000, was unprecedentedly low, and did not exceed 13·8 per 1000. In the four preceding corresponding periods (1906–09) the death-rate in 76 of these towns ranged from 15·7 in 1906 to 17 0 in 1907, and averaged 16·2 per 1000; the rate during the past six months was therefore 14·8 per cent. below the mean rate in the 76 towns in the four preceding corresponding periods. As nine years have now elapsed since the last Census, considerable doubt exists as to the present population of individual towns, and we have pointed out recently that our vital statistics may be vitiated by this fact. It should be remembered, however, that the official estimate of this aggregate population probably approximates more nearly than has been generally supposed to the correct number, as although the estimate undoubtedly overstates the population of many of the towns, this over-estimate is probably to a great extent balanced by an under-estimate of the population in other towns. In eight of the principal Scotch towns, having an estimated population of nearly 2,000,000, the annual death-rate during the six months ending with June last was equal to 16·5 per 1000, and showed an excess of 2·7, or 19·6 per cent., on the death-rate in the 77 English towns in the same period. In the 22 largest town districts of Ireland for which periodical returns are issued, and having an estimated population but slightly exceeding 1,000,000, the mean annual death-rate during the first half of this year was equal to 21·0 per 1000, showing an excess of 4·5 per 1000, or 21·8 per cent. upon the rate in the eight Scotch towns, and of no less than 7·2 per 1000, or 45·7 per cent. on the recorded rate in the 77 largest English towns. This marked excess of the rate of mortality in the Irish towns calls for more attention than it has yet received and is specially noticeable in the smaller towns. The average population of the 16 smallest of the 22 Irish towns only slightly exceeds 10,000, and yet in these small towns the annual death-rate during the first half of this year very considerably exceeded the mean rate in the 77 largest English towns with an average population exceeding 200,000. It is probably true that the crude death-rate in the Irish towns is to some extent overstated by the inclusion in their population of an exceptional proportion of elderly persons, but the marked excess in the death-rate points ominously to unsatisfactory health conditions and to inefficient sanitary administration.

SERIOUS RESULT OF INJECTION OF TUBERCULIN INTO THE SKIN.

THE original cutaneous reaction to tuberculin of von Pirquet, which is obtained by inoculating tuberculin into the skin as in vaccination, has been largely supplanted in France by the "intradermo-reaction" of Mantoux, which is obtained by injecting tuberculin into the dermis, and is claimed to be more reliable. At a meeting of the Société Médicale des Hôpitaux of Paris on April 29th Dr. J. Comby reported a serious result from this test. He never employs the intradermo-reaction, as he finds von Pirquet's method satisfactory and regards Mantoux's method as more likely to cause pain and inflammation. Of this he had seen several cases in his hospital practice. Recently he observed the following case in which a deep eschar was produced. A girl, aged 21 months, was admitted into the Hôpital des Enfants Malades on March 5th, 1910. She had suffered from cough since January and had previously been in hospital and submitted to the intradermo-reaction. She was discharged on Feb. 26th with redness at the point of injection. On readmission there was a scarlatiniform eruption, and in the evening the temperature was 100·7° F. On the following day the eruption disappeared, but the temperature pursued an ascending course. On March 9th the temperature was 103·5° and the eruption of measles appeared. On the following day she was removed to the measles pavilion, where she died after some days. At the time of readmission there was a red, hot, and painful swelling on the right thigh at the site of the tuberculin injection. The redness extended for some distance, producing the appearance of a patch of diffuse lymphangitis or erysipelas. In the centre was a prominent black point, such as would have been produced by the prick of a hypodermic needle. A round eschar larger than a franc gradually formed. This became detached, leaving a deep crateriform sloughing ulcer. Dr. Comby has never observed such a result after the use of von Pirquet's method, and is convinced that this procedure has the advantage of innocuousness over the intradermo-reaction. In this connexion the fact may be recalled that another local tuberculin reaction—the ophthalmo-reaction of Calmette—which seemed to be very useful in the diagnosis of tuberculosis, has in some cases caused such a severe reaction (ulceration of the cornea) that its use has been abandoned by many.

LOCAL AUTHORITIES AND THE COLOURING OF MILK.

THE attention of the Hove town council has again been called by its analyst (Mr. S. Allinson Woodhead) to the artificial colouring of milk as shown by the samples submitted to him for analysis. Of 22 samples no fewer than 18 had been so tampered with. "The artificial colouring of a natural product," Mr. Woodhead says, "is a practice which cannot be defended, as although the colouring matter may not be dangerous to health the reason for such addition can only be to make the milk appear richer in cream than it actually is. When we consider that the milk supplied in the country districts of east Sussex is usually richer than that supplied in the towns the reason for the addition of an artificial colouring substance is obvious." But no action appears to have been taken with respect to these 18 samples, and thus the practice of colouring the milk is allowed to go on unchanged. At the council meeting regret was expressed that the law did not insist upon the public being able to purchase milk without its being "faked." What of the Sale of

Food and Drugs Act? If pure milk were asked for and on analysis it was found not to be the genuine article in any particular whatsoever there would be ground for a prosecution at once. Local authorities do not take advantage enough of the provisions of that excellent statute, the Sale of Food and Drugs Act, and if wholesale samples of the so-called "pure milk" were taken by the authorities, and, where necessary, the vendors were subjected to the publicity of the police-court, there would soon be a smaller demand among purveyors for the annatto or other aniline dyes they are so fond of using. No excuse is needed for again drawing attention to this very common interference with milk. Milk is food for human beings; it is equalled by none in so far as its nutritive properties and ready digestibility are concerned; for the rearing of children nothing is more important than a pure and clean supply. Any tampering with it in any way whatsoever should, therefore, form the subject of police court proceedings with its concomitant penalties.

A DISCUSSION ON THE MEDICAL ASPECTS OF THE POOR-LAW.

As we have already announced, a number of medical men have arranged a meeting to be addressed by Mr. and Mrs. Sidney Webb on Wednesday, July 27th, at 4.30 P.M., at the Caxton Hall, Westminster. Invitation is extended to all those attending the annual meeting of the British Medical Association. Dr. J. Herbert Manley will take the chair and will be supported by Dr. Christopher Addison, M.P., Dr. Dudley W. Buxton, and others. Discussion and questions will be welcomed. The speeches will be preceded by a reception at 4 P.M.

TREATMENT OF PRURITUS VULVÆ IN DIABETES BY THE APPLICATION OF YEAST.

IN the *Progrès Médical* of May 28th M. Paul Carnot has described an ingenious method of treating the pruritus vulvæ of diabetes, based on the fermentation of glucose by yeast. The obstinate nature of this complication is well known. It is accompanied by erythema of the labia majora, which gives them a reddish-yellow and slightly dusky tint. As a result of scratching ulcers form, usually between the labia majora and minora, on the inner surface of the labia majora, or at the fourchette. These ulcers are reddish, painful, and pruriginous; they are attended by very little discharge and are very slow in evolution. The pruritus and erythema are due to the prolonged contact of the sugar-containing urine with the vulva. The treatment is general and local. General treatment, especially dietetic treatment, which ameliorates the diabetes, will also ameliorate the pruritus. For local treatment the frequent application of very hot Van Swieten's solution (1 part of mercury perchloride in 100 parts of alcohol and 900 parts of water) or a solution of bicarbonate of sodium, followed by powdering with talc and zinc oxide, is often used. The local application of tar, pure or mixed with lanoline, is sometimes very efficacious. In certain obstinate cases the local analgesic action of the X rays has proved very successful. But the most important point in the treatment is the prevention of the prolonged contact of the parts with the sugar-containing urine, which is accomplished by the careful use of lotions and injections after each micturition. In a recent case of pruritus vulvæ, remarkable for its obstinacy and severity, which rendered life intolerable, M. Carnot obtained excellent results from the application of brewers' yeast. His object was to cause the sugar to disappear automatically from the inflamed parts. This he accomplished by means of a lotion applied to the vulva and a vaginal injection made with a tablespoonful of fresh yeast in a litre of water. Not only was the irritating contact of the sugar with the inflamed parts prevented, but as the result of the fermentation it was replaced by a weak solution of alcohol, which had an antipruriginous and tonic action on the tissues. The injections and lotions were used twice daily and this was the only treatment. The pruritus ceased on the second day, the inflammation subsided, and the ulcers rapidly healed. M. Carnot suggests that this simple method should be tried in the various external manifestations of diabetes—certain sores, gangrene, and stomatitis—wherever, in fact, the sugar can be made to disappear by fermentation.

DENTAL TREATMENT OF LONDON SCHOOL CHILDREN.

THE Children's Care Subcommittee of the Education Committee of the London County Council issued its report on July 20th, within a week of the adjournment of the Council for the long summer vacation. The attitude of the London County Council with regard to the care of school children has been referred to in our columns on several occasions,[1] and it will be seen that the important question of dealing with defective teeth in school children has been postponed on two occasions for six months, but as the report has been brought up on the eve of adjournment the second postponement is virtually one of 12 months. The experience gained with regard to the dental treatment of children at Cambridge and elsewhere having shown that the number of carious teeth open to conservative treatment decrease as the children advance in age, and that treatment for children in the last year of school life is much more serious and expensive than in earlier years—the serious increase in the number of children with caries of the permanent teeth taking place between the ages of 7½ and 8½ years of age—the subcommittee proposes that a beginning should be made by providing treatment for such children, accepting the experience of Cambridge that 73 per cent. between these ages require dental treatment. In round numbers there are about 80,000 children between the ages of 7½ and 8½ years attending London elementary schools, and of these probably 60,000 require treatment. The British Dental Association being unable to undertake the work for the Council, the subcommittee is considering the desirability of arranging for the work to be done by private dentists in their own surgeries, and also whether it would be possible for the London hospitals to make special provision for dental treatment. It reports that two offers have been received which would enable the Council to obtain experience of dealing with the problem. The Poplar Hospital for Accidents will provide treatment at the rate of £50 a year for a dentist working one half day per week, with 2*s.* for each case. The facilities offered would secure treatment for 2200 children. A committee in Deptford has offered to provide treatment at a local surgery on two half days a week without charge to the Council, and to charge the parents for treatment in accordance with the Council's scale. On the assumption that 3500 cases a year would be treated, the cost to the Council would be £750 a year. These two schemes would secure treatment probably for 5700 children for, approximately, 4*s.* a case. On this basis 60,000 children would cost some £12,000 a year, exclusive of grants for equipment. The subcommittee recommends that advantage be taken of these offers and that for the present the selection of the children for treatment should be made by school medical officers. The stage reached, therefore, is that 5700 children are to be seen once in 12 months.

A RE-ORGANISATION of the system of medical inspection in London is in prospect by which children will be examined

[1] THE LANCET, vol. i., 1909, pp. 1069, 1335, and 1343.

at three, instead of two, age periods, each school to be visited by a medical man not less than once a term. The increased work will make necessary the appointment of two additional full-time assistant medical officers at a salary of £500 a year each, and 28 additional quarter-time assistant school doctors.

Mr. Robert Brudenell Carter, Knight of Justice, deputy chairman of the British Ophthalmic Hospital, Jerusalem, and formerly its honorary consulting surgeon, has been promoted to be Commander of the Order of St. John of Jerusalem.

ALL our readers will join us in congratulating Dr. Dawson Williams, editor of the *British Medical Journal*, upon steady progress towards recovery from his alarming accident.

Looking Back.

FROM

THE LANCET, *SATURDAY*, July 21st, 1832.

APPARATUS FOR VENOUS INJECTIONS.—RISK OF INJECTING AIR.

To the Editor of THE LANCET.

SIR,—The treatment of cholera by venous injection being at this time the subject of very extensive experiment, I am desirous of suggesting through your journal, that which I think the profession generally are not sufficiently aware of, viz., the extreme tenacity with which bubbles of air *adhere* to the interior of the tubes and other parts of the apparatus employed. Many persons with whom I have conversed imagine, that immediately the liquid appears at the point of the vein tube, the whole of the air has been dislodged from the apparatus, and that they may then safely insert the tube into the vein. My daily experience in fitting up and proving the perfectness of the various modifications of the instruments that we have manufactured according to the suggestions of different practitioners, prove to me that a considerable quantity of liquid must be passed through the *most perfect* apparatus, before the operator ought to satisfy himself as to the safety of introducing the tube into the vein, and for this purpose the point of the tube should be held under water, and the issue of the liquid carefully watched to detect the appearance of air bubbles. It will, *at first*, be found, after two or three strokes of the piston, unaccompanied by air, but the next stroke may exhibit abundance of air bubbles, and prove the necessity of persevering in this preparation of the apparatus until no more air can be detected, which I have generally found to require the passage of about a pint of liquid through the tube.

As a proof that my experiments have not been made on an imperfect instrument, I ought to state, that my observations hold good even when the whole of the apparatus is submersed in water. I am, Sir,

your obedient servant,

55, Aldermanbury, July 13, 1832. J. H. MAW.

ON Friday, July 29th, at the Central London Throat and Ear Hospital, Gray's Inn-road, from 3 to 5 P.M., there will be an exhibition of microscopical specimens pertaining to the throat, nose, and ear, and also a demonstration of interesting cases. The medical staff extend a cordial invitation to members of the British Medical Association present at the annual meeting next week.

Mr. John Hatton, director of the Grand Pump Room, Bath, is making preparations for 200 visitors on Saturday next, July 30th, in connexion with the meeting of the British Medical Association. A special train will run from Paddington at 10.40 A.M., with a return train due in London at 8.9 P.M.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The 7 h.p. Single-cylinder Swift Car.

WHEN it was announced before the last Olympia Show that the Swift Motor Company, Limited, of Coventry and 15 and 16, Holborn Viaduct, London, had put on the market a small light cylinder two-seater, the advent was looked forward to with much interest, especially by the would-be medical motorist. For there can be no question that a little "runabout" is the ideal carriage for a medical man. Its cheapness to purchase and to run, as well as the advantage of a low tax, compensates, I am sure, for what is unavoidable with pretty well all single-cylinder machines, a somewhat audible note. Of course, this car does not desire to be considered in conjunction with four-cylinder engines, and yet, if it did, its claim would not be preposterous, as in many respects it certainly behaves like a multi-cylinder engine. Apparently many have realised the good points of the car, for though in November I had marked it for report in the columns of THE LANCET there has been such a demand for this "big car in miniature" that it was only recently that Mr. Bale, the London manager of the company, could find one to place at my disposal for the purpose of this article. From my point of view it was an ideal car, as I did not desire a specially tuned up one. I wished to be able to give my experiences on one that had been used, and the car handed to me had been subjected to the hardest of usage for some time. It was the London depôt demonstration car, and for months members of the press and possible purchasers had had drives in it. Of this I had more proof than even the condition of the carriage work, for when Mr. Bale was demonstrating to me the manipulation of the various levers we discovered a lack of power. The cause was soon discovered; a worn copper asbestos washer at the inlet valve cap joint permitted loss of compression. This trifle was soon corrected, but it was a proof that the car had not been prepared for my use.

The car follows generally upon the lines of a large car; in fact, it is a large car in everything but actual size and power, and it embodies all the mechanical refinements which go to make the modern big automobile the reliable vehicle it undoubtedly is to-day. The frame is of pressed steel, narrowed in front to allow of a wide steering lock to the wheels. The overall length is 9 feet and the overall width is 4½ feet. The rear springs are three-quarter elliptical. The engine has a bore of 4¼ inches and the stroke is 5 inches. The normal speed is 1200 revolutions, but it can be accelerated to 1300, at which 9 brake horse power is given off. The valves are mechanically operated, of large diameter and interchangeable. The valve tappets are quiet and can be easily adjusted. Cooling is by thermo-syphon, but the cooling effect of the gilled tube radiator is assisted by the action of a draught set up by vaned arms on the fly-wheel and aluminium cone clutch. Two ignitions are fitted quite separate and distinct from each other. The magneto is gear-driven and can be easily detached. The make and break of the coil method of firing the mixture is driven by spur gearing off the rear of the cam shaft. Both systems have a fixed firing point; that on the accumulator is fixed well on the down stroke of the piston, so that as long as one does not endeavour to start on the magneto it is impossible to get a back fire. The magneto is, of course, arranged for advanced firing. The sparking plugs, the Bosch, are one of the best and most reliable types. Lubrication is by an oil pump, driven off a continuation of the commutator spindle. An indicator on the dashboard shows that the pump is working, and the oil after circulation passes through a strainer before again reaching the pump.

The carburettor is of a simple type, with an automatic air dashpot, which provides extra air as required in proportion to the engine speed. It certainly is not extravagant in the matter of petrol. Over hilly roads in bad weather I found I could average nearly 32 miles to the gallon, and this with two on the car and with a front glass and the hood up. The clutch is of the coned leather-to-metal type, with spiral springs beneath the leather to ensure smooth engagement. The clutch spring is enclosed and the end pressure is taken

on a ball bearing. The fly-wheel is of large diameter, which explains the steady running of the engine. There is a double flexible joint between the clutch and gear-box. The three-speed gear-box, as well as the engine-crank case, is of cast iron. Two felt washers encircle the main driving shafts at either end of the box and absolutely prevent leakage of oil or grease. The lay shaft is underneath the main shaft, and a praiseworthy feature is that a central bearing is provided for the gear shaft, thus reducing any possible springing to a minimum. An internally toothed wheel provides the top speed direct drive. The bearings are of cast iron, which has been found to answer remarkably well. The change speed is of the gate type, and a good feature is that before the reverse gear can be engaged a plunger in the speed handle must be depressed. The drive from the gear-box to the rear axle is by means of a propeller shaft, universally jointed at each end. The rear axle is of great strength and the wheels are mounted on well-spaced ball-bearings on independent sleeves. Both the brake pedal and the brake lever act on compensated internal expanding brakes in the rear wheel hubs, the pair of brakes to each wheel being side by side. A simple method of adjustment is provided. Both brakes are powerful, and I especially noticed that they kept quite clear of the drums when out of action. It certainly seems an advantage to dispense with the usual cardan shaft brake; it must be better for the transmission gear and tyres. The steering gear is of the usual worm and segment type. The petrol tank is very conveniently placed on the dash, and a gauge at the side shows the petrol level. A compression relief is provided to ensure easy starting. The control is simplicity itself, merely a throttle on top of the steering column; a foot control is also fitted. The levers on the driver's side are so arranged that it is possible to get out of the car on that side, and, so that this may not be prevented by the always useful Stepney wheel, room is provided in the tool box at the rear to carry that necessary adjunct there.

I used the car for an afternoon's round and on the following day gave it a severe testing over really bad roads during a 200 mile run. On the level the speed is quite up to the average, and I found the springing comfortable when the car was running underloaded as well as loaded. The car likewise held the road well, quite as well, in fact, as many a one of larger horse-power and longer base. Though a small engine, it certainly had a "big heart." I am sure that the Swift Company can well be proud of this car, and it is also one well suited for professional use. As a standard two-seater it is sold at £147, but for medical men I think the "De Luxe" rotund body, with hinged side doors and "scuttle" type dash board, well worth the extra £13 charged.

The Sad Fatality at Bournemouth.

The Hon. C. S. Rolls, the hero of the recent double flight across the Channel, was killed at the Bournemouth flying meeting on July 12th. He was competing for a prize offered to the airman landing nearest the centre of a circle 100 yards across. Seemingly the rear rudders of his Wright biplane broke loose, and the wires manipulating these rudders fouled the propellers, causing the machine to capsize and fall to earth. Death was probably due to a fractured base and must have been instantaneous. I feel that I ought just to chronicle this sad event, as Mr. Rolls was one of the greatest pioneers in the motoring world; of course, everyone has read the long accounts of the tragic occurrence.

The 8 and 10 h.p. De Dion Instruction Book.

It has for some time been recognised by motor-car manufacturers that the issuing of an instruction book is not only desirable but a necessity. Instead of a general instruction book Messrs. De Dion Bouton have decided to issue separate instruction books for each of their models. The first of these booklets deals with the 8 h.p. single-cylinder and the 10 h.p. four-cylinder types. It is well compiled, illustrated by numerous drawings, and should be of great use to all owners. If drivers of cars would but take to heart certain advice given in the introduction there is no doubt that fewer cars would need repairs. It is there stated: "Every part must be kept taut, and properly adjusted, and all movements should be thoroughly lubricated." A copy of the brochure will be forwarded to any owner of a De Dion car on application.

THE CONFERENCE AT EDINBURGH ON THE PREVENTION OF TUBERCULOSIS.

Annual Meeting of the National Association for the Prevention of Consumption and Other Forms of Tuberculosis.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

(*Concluded from p. 188.*)

The Incidence of Tuberculosis in Childhood.

ON Tuesday morning, July 5th, the sitting was opened by the reading of Dr. Franz Hamburger's paper, which was published in our columns of July 9th.

Dr. J. E. SQUIRE (London) followed, and dealt, in respect of their medical examination, with tuberculosis in children of the school age. The figures given differed according to the motive of the inquiry. But even when there was tuberculosis it was often better for the child to attend school, where the conditions were immeasurably more hygienic than at home. There were two methods of investigation: first, by ordinary clinical examination; secondly, by one or other of the tuberculin methods. The first of these revealed only the children in whom tuberculous infection had resulted in some actual morbid change in the organs. The second method by itself only indicated at the most the existence of tuberculosis without determining its site, and it should therefore be combined with physical examination. Dr. Squire did not think the results of the tuberculin test could be accepted as evidence of the prevalence of tuberculosis. Of 672 children he had recently examined in a school in a poor part of London he found less than 1 per cent. with undoubted signs of tuberculosis of the lungs, though 9 per cent. showed signs which were not quite normal. Of 47 girls from 8 to 13 years of age, all of whom were stated to be tuberculous, he only found three with genuine signs of pulmonary tuberculosis. He was convinced that this disease was in no wise frequent during the school age. At Brighton, at Berlin, and other places the researches made gave similar results. This did not mean that the children were in a healthy condition. In South London, of 672 children examined he found 9 per cent. were not normal, and it would have been a good thing to send them to the country or the seaside. Possibly they might be carriers of disease, and if so this was another argument for tracking the condition to its real source—the home. It was in the home and not in the school that they would find the conditions which determined the onset of the disease and which favoured its advance.

Dr. J. DOUGLAS STANLEY (Birmingham) thought that the subject of surgical tuberculosis was neglected, and he gave further figures to show how rare tuberculosis of the lungs was among children. Also they did not spit, and therefore were not dangerous at school, but might easily be infected at home, and the speaker related incidents to illustrate this risk. Therefore he concluded that children should not be excluded from school.

Dr. THEODORE SHENNAN (Edinburgh) gave details of 1085 post-mortem examinations held at the Edinburgh Royal Hospital for Sick Children, and stated that 38·8 per cent. had died from tuberculosis and 82·0 per cent. of these had the lymphatic glands affected. The largest number occurred in the second year; then there was a rapid drop to the fifth year, a slight rise in the sixth, and then a continued drop till the twelfth. He thought that much of this was due to bovine infection, and he described three cases of children who were well in every respect but contracted tuberculosis when sent to the country where they drank milk direct from the cows. 47 per cent. of the cows on the farms from which this milk had been obtained reacted to the tuberculin test. When tried again three weeks later only 10 per cent. reacted. He felt convinced that children were infected by bovine tuberculosis.

Mr. H. DE C. WOODCOCK (Leeds) thought the tuberculin test only showed susceptibility, as with vaccine for small-pox. But there were physical signs, notably the shape of the hand, that also revealed this susceptibility. The town races resisted infection better than the country people.

Susceptibilty of Children to Abdominal Tuberculosis.

Dr. A. DINGWALL FORDYCE (Edinburgh) read a paper to show the excessive prevalence, especially at the ages of 2 and 3 years, of abdominal tuberculosis at Edinburgh and Glasgow. 35 per cent. of the children who were patients at the dispensary were not nursed at the breast. The majority of those who were suckled were only so nursed for six months. Obviously, therefore, the first step of all was to obtain cheap and clean milk. To this end the "Gouttes de Lait" Congress held in 1905 had endeavoured to establish societies in all countries. At Brussels last year, when this congress met again, many nations sent official representatives, but Cuba and Great Britain were not represented. The speaker thought we ought to take an active part in all great international efforts for the protection of child life.

Dr. W. E. CARNEGIE DICKSON (Edinburgh) explained that at the Sick Children's Hospital of Edinburgh three-quarters of the children who died and came under his cognisance died from abdominal tuberculosis. Far too much had been said about pulmonary tuberculosis. From the age of one day to 14 years the milk was the chief danger, and this peril was increasing of late years. The lung condition was comparatively unimportant as compared with the abdominal cases. Then surgical cases were almost all due to infection of the alimentary canal. Edinburgh and Glasgow were perfect plague spots in respect to infantile mortality.

Distrust of the Tuberculin Test.

Dr. R. W. PHILIP (Edinburgh) wanted to get at the root of the matter. Tuberculosis began with the child, but the manifestations were often so slight that they were forgotten. The mucous membrane from the nostril to the anus might easily be devitalised and thus become receptive. The child enters life in a compulsory environment of bad sanitation which favours devitalisation. The bacillus thus had its chance and generally attacked multiple small glands whose enlargement was hardly noticeable. Then, as a secondary involvement, the lungs might be affected. It was a grave mistake to draw a hard line of separation between the affections of the lungs and the alimentary canal. By watching cases for many years we learnt to take a larger outlook. Therefore at Edinburgh they did not work against one condition but against many—if possible, all conditions.

Dr. CHARLES M'NEIL (Edinburgh) sought to vindicate the value of Dr. Hamburger's statistics. If tuberculin only indicated susceptibility the statistics in question were valueless. But to demonstrate the merit of the von Pirquet reaction Escherich at Vienna had made 300 necropsies of persons in whom the reaction had taken place during life, and in 297 cases foci of tubercle visible to the naked eye were found. Where absolute tubercles could not be found injections produced the disease in guinea-pigs. Therefore he thought Dr. Hamburger was justified in saying that the great majority of children had latent tuberculosis by the time they reached the age of 14 years.

Dr. J. B. RONALDSON (Haddington) argued that insufficient attention had been given to the question of milk.

Dr. H. SCURFIELD (Sheffield) suggested that the insanitary condition of Glasgow and Edinburgh might be due to the flat system which would kill as many children as bad milk.

Mrs. ELKIN (London) described briefly the Charlottenburg scheme and the German forest schools. She urged that children should be given the benefit of the doubt and be put out in pure air before there were very positive symptoms of mischief.

Dr. SQUIRE then replied and closed the discussion. He declared that, were it possible, he would like outdoor treatment for everybody. He was not convinced as to the reliability of the tuberculin test. The most telling evidence was that of the post-mortem examinations. We ought also to investigate the plight of those who do not die. At one period there might be an infection of the lymphatic glands, but these were filters that stopped the intrusion of the disease. Therefore they were often invaded. Consequently he ventured to whisper to-day what to-morrow would be shouted on the house-tops—namely, that the tuberculin test was not reliable.

The Problem of State Intervention.

In the afternoon Mr. CHARLES GARLAND (London) brought forward the financial aspects of the question. It had been said that tuberculosis increased with the price of wheat, with the proportion of illegitimacy or of unemployment, and undoubtedly it was true that all cases tending to reduce the powers of vitality increased the prevalence of the disease. Therefore, if we hoped to prevent tuberculosis we had to hope for the more equal distribution of wealth. But short of this we could do good work. But we should always require money. We wanted to repeat what was now done at Edinburgh and at Paddington, but were paralysed for want of money. Then we had not enough sanatoriums. As far as he could ascertain, there were 350,000 tuberculous patients and some 60,000 new cases every year. Hospitals and sanatoriums disposed of 4000 beds, so that, if patients were treated on an average for four months, this provided for 12,000 patients. The Poor-law institutions had 3350 beds more for perhaps 10,000 patients per annum. The total might be set down at 7350 beds for 22,000 patients. The annual loss was estimated at £2,000,000 in wages or increased home expenses. If we were to attempt preventive treatment and to give full necessary treatment to the curable, we needed 30,000 more beds, besides establishing anti-tuberculous dispensaries in every town and village. These latter would cost at least £100,000. The sanatoriums would cost some £3,000,000 to erect, and their maintenance and the interest on loans some £2,000,000 per annum. The care of the families while the wage-earner was under treatment would amount to £1,250,000, or a total annual expenditure of £3,350,000 for curative and preventive treatment. The hospitals and infirmaries for the more advanced cases would cost £3,000,000. Could voluntary efforts provide £6,500,000 per annum? The speaker described the negotiations that had taken place with the benefit societies and the trade unions; the Postal Servants' Union alone had made a serious effort, and they provided 35 beds. The friendly societies could not act because the law did not sanction such action on their part. But if the laws were altered and these organisations did all they could, still this would not touch the population of 13,000,000 that lived on the poverty line. Therefore the State, and the State alone, must grapple with the problem. It was no use calling such action Socialism. In commerce and in various phases of human enterprise collectivism was replacing isolated individual effort. According to the calculations of Dr. Latham and himself the cost would amount to 3*s.* per annum per head of the population. Voluntary efforts had failed, the Poor-law was obnoxious, insurance companies had not done anything. There only remained State intervention. The speaker could say authoritatively that the working classes were willing to bear their share of the burden. He did not undervalue voluntary help, but its chief value was that of setting an example to the State.

Dr. T. D. LISTER (London) pointed out that friendly societies were at a disadvantage, because if they sent their members to sanatoriums they would lose their employment permanently. Under Government service only was there some good prospect of re-employment.

The Working Man in Relation to Tuberculosis.

Dr. JOHN C. MCVAIL (Glasgow), in a paper on the above subject, said: Whilst engaged in an investigation three years ago into Poor-law medical relief in England at the request of the Royal Commission on the Poor-laws, the importance of the phthisis problem in respect of the working man was brought before me more urgently and impressively than ever before. The question whether phthisis is a cause of pauperism or pauperism a cause of phthisis naturally made itself prominent from the beginning of the inquiry, and the answer, broadly speaking, is that phthisis causes pauperism in one generation, and pauperism causes phthisis in the next. The causes of tuberculosis in the working man include hereditary tendency, unhealthy occupations and workshops, irregular work, insufficient income, exposure, misconduct, especially alcoholic abuse affecting health and surroundings; bad housing conditions in respect of structure, for which the owner is responsible, and want of ventilation and cleanliness, for which the occupier is responsible; dirty skin and dirty clothing; dietary defective as to quality and quantity and cooking; and general ignorance and neglect of domestic economy. Having been impoverished in one or more of these ways, the working man comes under the charge of the Poor-law. I visited a large number of houses in which phthisical paupers were being treated at home. In many of them the conditions were such as to give phthisis all the opportunity possible for the operation of its infective

power. Precautions as to sputum might be attempted or neglected, and if attempted might be more perfunctory than thorough. Often, I am bound to say, a window was open, a most valuable measure, but dirty skins, clothing, furniture, and floors were common. The Poor-law authority provided the weekly dole through the relieving officer, who might either call with or send it, but even where the relieving officer called and saw conditions requiring remedy, he was not at that time in any proper correlation to the health authority, and the same remark applies to the district medical officer. That, I am glad to say, is largely altered now, as the Poor-law medical officer is required to intimate all cases to the medical officer of health. Such were often the conditions whilst the patient lived, and there was every opportunity for sowing the seeds of infection. When he died his widow and children were in no better plight. The Poor-law would give the widow an allowance of perhaps 2s. a week in respect of each of three children, and would tell her to work so as to eke out this income. The children would be left alone in a city slum. The house would be dirty and unventilated, and the slops unemptied. The kitchen table would be littered with scraps of food, cold tea and bread and jam, and the like, left from the breakfast. The woman on her return at night would be too tired or too ignorant to prepare a dinner. The system is utterly unprofitable. The widow should be sent away from the city slum, and into the country with her children. She should be allowed enough money to feed them properly, and the local authority should make a point of seeing that the money is expended properly, and that the elements of cleanliness and wholesome dietary are attended to. Also, the children should come under periodical medical inspection so that their general health would be supervised, and disease, if possible, nipped in the bud. As regards the working man himself, the prevention of phthisis is infinitely more profitable and more practicable than the cure of phthisis. A few days ago the Chancellor of the Exchequer made in Parliament a pronouncement of the greatest possible significance as bearing on the possibilities of phthisis prevention. Next year he proposes to introduce a great scheme of invalidity insurance for the working classes. It is to be contributed to by the State, by the employer, and by the worker himself or herself. If this great scheme takes due cognisance not merely of relief during invalidity but of prevention of invalidity, a tremendous step will have been taken towards the eradication of consumption. The scheme will, of course, involve medical attendance during illness. It ought also to involve an annual or biennial visit by the medical attendant quite independently of illness. His duty should be to ascertain in this way the general conditions of health of those who are committed to his care, and he should advise them both as to restorative and as to preventive measures. The condition of the house as regards cleanliness and ventilation should be noted and the value of fresh air should be insisted on for the prevention and not merely for the treatment of consumption. Where required a warning should be given as to any bad features in the domestic régime so far as bearing on health. All this should be in supplement to the inspection of factories and workshops which is already being increasingly practised. Concerning isolation and cure of existing cases of the disease, I am of opinion that more attention should be given than at present to the boarding-out of suitable patients. In country cottages boarding-out of Poor-law children and of certain classes of the mentally defective is already practised with most admirable results. It could be well extended to many cases of phthisis. In speaking of the work done by the Poor-law, I should have mentioned that in large urban unions in England hundreds of cases of advanced phthisis are now removed to the union infirmaries, and in this way the spread of infection cannot but be diminished. Each case removed is a benefit to those that are left at home, as the risks of sputum infection are at once stopped, but the family home should not be left without supervision. The Poor-law medical officer should call periodically to see whether they remain well and their home conditions should be under systematic inspection, at the same time that the allowance made by the guardians should be adequate to provide them with proper food. On these lines a very decided advance can be made on the prevention and control of tuberculosis amongst the working classes.

Sir THOMAS OLIVER said: As we have been already told, this is a working man's question, for the working-classes form the greater part of the population, they are affected in larger numbers by tuberculosis, and when affected they have fewer chances of recovery. Tuberculosis also attacks the wealthy and the well-to-do, but they are provided with the means whereby health may be possibly regained, for if there is one disease for which money can accomplish much it is tuberculosis. Since statistics show that the working-classes are not all of them evenly affected it would appear as if the occupation followed as well as habits had something to do with the question. The dustier the occupation the higher is the mortality from pulmonary phthisis, hence 70 per cent. of deaths of steel grinders from pulmonary tuberculosis between the ages of 25 and 34, and 46 per cent. of metal workers, compared with 14 per cent. of agricultural labourers. It is perfectly true that the dusty atmosphere of a factory or workshop may contain few pathogenic organisms, but the dust itself acts as an irritant and predisposes to pulmonary disease, and besides if tuberculosis is present the appearance of other germs within the body often interferes with the successful treatment of tuberculosis. Experience shows that a smoky atmosphere creates a predisposition to pulmonary disease. The inhalation of coal-smoke not only causes small hæmorrhages in the lungs but weakens local resistance, so that animals which had previously inhaled smoke and were subsequently infected with tubercle died more rapidly and exhibited more serious lesions in their lungs than animals infected with tubercle but not previously exposed to smoke. To this circumstance as well as to overcrowding and the poverty which stalks in our large towns may be partly attributed the higher death-rate from pulmonary phthisis in towns than in the country. The commercial rise of Germany and the change which has taken place in the mortality returns of certain of her manufacturing towns confirm the relationship I have alluded to of coal-smoke and lung disease. For standard rates of mortality the agricultural classes are taken. Their percentage mortality from tuberculosis is small. This must be largely the result of their life in the open air, for in far too many instances the food of agricultural labourers is poor, their house accommodation bad, and their wages small. Masons follow their calling in the open air; they have better food, higher wages, and are better housed as a rule, and yet they die from tuberculosis in larger proportions than agricultural labourers, a circumstance which again suggests that occupation plays an important part in predisposing to the malady. 30 years ago when I went to Newcastle there were always in the infirmary wards a few coal-miners suffering from phthisis. At the present time it is extremely rare to find one. Compulsory ventilation of coal-mines has not transformed a dusty occupation into one which is less dusty, unless water-spraying is practised, but into one supplied with an excess of pure air, and by which it has been rendered healthier. Coal-miners in this country, except on rare occasions, no longer develop phthisis in consequence of their occupation; they become infected in their homes and elsewhere, so that if colliery proprietors would only give their workers better and more roomy house accommodation the women and children would be healthier than they are. That work in ill-ventilated and dusty mines is productive of serious harm I have on more than one occasion shown. It was in the pages of THE LANCET that I first drew attention to this subject. During the South African War and at its close I was frequently consulted by Northumberland miners who had just returned from the Transvaal. A few years prior to this these men, all young and in the prime of life, picked men in fact, had gone from their homes in the North of England to the gold mines near Johannesburg. Within five years several of them returned home to die. In consequence of the use of rock drills and working in an overheated as well as in a dusty atmosphere their lungs had become affected. I will not labour this point here as to whether the pulmonary disease of the Rand miners is tuberculous at its inception or not. It is the result of irritation by dust, and in many of the cases pulmonary tuberculosis is the sequel. With workers in pottery the circumstances are the reverse of those observed in coal-miners. The malady is contracted at work and the disease is carried to the home. Cessation of work for a period in a dusty trade is one of the means of preventing the disease getting a foothold. Nature has endowed the lining membrane of the respiratory tract with ciliated

epithelium, and by the activity of its ciliary processes the dust which has been inhaled is got rid of. Unless there is some special reason to the contrary, it is just a question whether in dusty trades the break for the midday meal should not be for two hours instead of one. There is a danger in pushing the infective theory of tuberculosis too far. It has already created an amount of public fear which the degree of infectiveness of the tubercle bacillus scarcely warrants, and which if pushed further will make it extremely difficult for working men who have been treated in sanatoriums and have practically recovered to obtain employment. All rational methods must be adopted to prevent the spread of the disease by infection, but the disease is something more than the incidence of the ubiquitous tubercle bacillus. There is the question of the soil upon which it falls. We must not, therefore, attach all the importance to the organism and ignore its environment. To us as medical men tuberculosis is also something more than the provision of sanatoriums. When wages are good the working classes have better food and they can be better housed, but as there are certain trades in which the tuberculosis mortality-rate is higher than in others, only strong and healthy men should take up these trades, and when following them they would be well advised if they submitted themselves periodically to medical examination. Mr. Garland has told us of the financial loss to the country caused by tuberculosis. It is a loss to industry as well. There is a value to be attached to trained work. The removal by death of a trained and skilful workman cannot be immediately replaced by an untrained man. There is therefore a loss industrially as well as financially, whilst socially the loss is also felt, since there may be left a widow and children to be supported by the rates. The prevention of the spread of tuberculosis is not enough. The malady must be attacked at its origin and traced if possible to its source—either the dusty atmosphere of mine, factory, or workshop, or the overcrowded home with scanty means of living. Factory inspection, medical examination of certain classes of workers and their surroundings, change of occupation of unskilled labourers from a dusty trade to outdoor employment would help to improve matters, but if there is one thing which should not be overlooked it is the potent power for harm of excessive indulgence in alcohol by persons employed in certain trades, for only by this means can be explained the higher percentage mortality-rate of phthisis, 38 in hotel- and inn-keepers, compared with half this rate in persons following healthier vocations which do not expose them to alcohol.

Dr. N. Raw (Liverpool) in 20 years had attended on some 3000 working men patients. He had come to the conclusion that the workman and his wife were utterly helpless. The application for medical advice was generally made too late because the individual did not want to leave his work. Tuberculosis cost the Poor-law £1,500,000 annually from the rates, and then they could not retain the patient, and he went home two or three times at the risk of infecting his family. The loss in wages amounted to £300,000 in Liverpool alone. This disease was the commonest cause of pauperism. Respectable and thrifty workers were made paupers by tuberculosis. Therefore, to reduce the prevalence of this disease was to reduce pauperism. But we could only do this collectively. We must have the right to levy the cost. He had carefully examined the working of compulsory insurance in Germany and felt that we must do something similar. By it the workman was educated to the possibility of prevention and willingly contributed a part of his earning for such a purpose when he found that the State and his employers were also ready to pay their full share.

Mr. Wareham, representing the friendly societies, from London, urged that voluntary effort was spasmodic and unreliable and did not come from the sufferers. Compulsion was necessary, because workmen mistrusted charity and abominated the Poor-law. The friendly societies only represented the aristocracy of labour and had no idea of dealing scientifically with the problem. Both from the business and the sentimental side the whole matter must be taken up by the State.

Dr. A. C. Gray (London) admitted that the advocates of a complete State provision for the treatment and prevention of tuberculosis had the advantage of a fairly logical position. But an action, he said, which is apparently the logical outcome of a situation, is not always practically the best, and he desired to urge consideration of the question whether the methods proposed will really attain the object in the shortest time. "You cannot," he said, "both eat your cake and have it, and, if you insist on demanding a complete and all-embracing organisation at the expense of the State, you will most certainly check, if not stifle altogether, that voluntary effort. And in return what will you get? You will certainly not get complete all-embracing machinery. We do not have, and we need not expect to obtain, ask as we will, a central autocratic administration of public health measures. It will be in the hands of the local authorities; and the medical officers of health present can tell us what, in practice, that means. I might ask if it is their experience that local authorities are always prepared to remedy even the grossest defects reported to them. No, you will get no more than you are already obtaining by voluntary effort, with the additional delay incidental to public official action, and you will have thrown away a valuable existing asset. But that is by no means the only difficulty; I should like to point out a few of the others. The analogy with the specific fevers is incomplete and misleading. Tuberculosis in some forms is not infectious at all, and pulmonary tuberculosis is not infectious in the early stages in which treatment is most effective. No doubt it is true that to treat the non-infectious case is to remove a possible future focus of infection, but that argument would apply equally to a proposal that the State should place in completely satisfactory conditions every individual who, by reason of impaired vitality, might be thought likely to become infected, and that leads us to a *reductio ad absurdum*. The duration of the disease is indefinite and often lengthy; the individual patient may feel able to work, and if you are not prepared to have your elaborate machinery of control a farce, if the State is not prepared to stultify itself, compulsory powers of removal would be necessary. Few will be found to suggest that that is at present within the sphere of practical politics." On the question of material relief he pointed out that if the State undertakes the responsibility of the disease as a whole, it will absolutely and inevitably be driven to undertaking the responsibility of the maintenance both of the patient and his dependents; nor would that stop at provision for a paltry three or four months during treatment at a sanatorium. The cured case could not be permitted to return to unsuitable work or to unfavourable surroundings. Support while waiting for suitable work and nourishment to prevent the expenditure on treatment being thrown away would both be forthcoming, and a comparatively short time would serve to produce an army of phthisical pensioners, morally degenerate because of their loss of independence, and prone to relapse because deprived of the needful stimulus. Moreover, the public health authority has at present no power to give material relief; such powers would have to be obtained, after long delays, and the resulting confusion and overlapping with the Poor-law authorities would be a fresh difficulty, for whatever some people may choose to think, there is not the least chance of the total elimination of a special Poor-law authority for at least many years to come. "Then," he asked, "are we of the medical profession really so unanimous as to the requisites of treatment as to be prepared with a scheme for the whole country? Dr. Latham and Mr. Garland demand 60,000 sanatorium beds; Dr. Philip tells us that with an efficient dispensary system the amount of necessary sanatorium accommodation is comparatively limited, while a third authority maintains that sufficiently early treatment with tuberculin will render all sanatorium accommodation superfluous. With the elasticity and prudence of development of a voluntary system such difficulties do not exist. Local variation provides a series of useful experiments from which the most efficient means are evolved, and a voluntary system is necessarily, in a case like this, more efficient because it is more enthusiastic. It cannot come into being without enthusiasm, and with that cannot fail to be more effective. We know from the Chancellor's Budget speech we are within sight of a national system of invalidity insurance. The experience of the German scheme has been that the insurance institutions have found it profitable to invest surplus funds in the provision of hospitals and sanatoriums for the purpose of preventing permanent invalidity, and consequent charge on the funds. Till we know what form the insurance scheme is going to take in this country and what preventive developments are likely to ensue, it is surely premature to ask for

State-provided sanatoriums and, in any case, it is probable the demand would fall on deaf ears. Meanwhile there is plenty for the health authorities to do if they will continue to attend to the general sanitary measures."

Mr. DUCKWORTH (London) thought there would always be room for private effort.

Councillor MACPHERSON was anxious that all the local authorities should enforce compulsory notification.

The Resolution on State Intervention.

The discussion being now ended, the Conference was asked whether it would consider a resolution on the subject, and, having voted in favour of so doing,

Dr. A. K. CHALMERS, medical officer of health of Glasgow, moved:—

That this Conference, in view of the magnitude of the financial issues involved in any comprehensive scheme for the eradication of consumption—implying as it does the prolonged treatment of the consumptive, and when he is the bread-winner the maintenance of his family—recommends the Council of the National Association for the Prevention of Consumption to represent to His Majesty's Ministers the desirability of considering a scheme of national insurance against the disease.

Dr. J. C. MCVAIL moved, as an amendment, that the special attention of the Chancellor of the Exchequer, Government, and Parliament be called to the importance of giving the prevention and treatment of tuberculosis a prominent place in the proposed scheme of invalidity insurance.

After a brief discussion the amendment was adopted, the feeling being that we could not have special Acts of Parliament for each important disease.

This concluded the business of the Conference, which, after a few congratulatory words from the Chairman, Professor OSLER, finally adjourned.

THE METROPOLITAN ASYLUMS BOARD: THE ISOLATION OF MEASLES.

The Reception of Puerperal Fever.

ARISING mainly out of a report by Sir Arthur Downes for the Local Government Board, the Metropolitan Asylums Board on Saturday last, July 16th, decided to make a radical alteration in their hospital system. Briefly stated, the matter under consideration was whether the large margin of unoccupied beds which frequently exists in the fever and small-pox hospitals could be beneficially used for providing for additional classes of patients, and for meeting the growing demands on the children and imbeciles departments. A number of recommendations were brought up by a subcommittee who had gone exhaustively into the matter, and these were confirmed by the Board with unanimity and without discussion, save in one instance. The most important decision was "that the Local Government Board be informed that the managers are willing to arrange for the reception, tentatively, of measles and other approved diseases in their fever hospitals, provided the Local Government Board can empower them to admit selected cases from the poorer classes for which no accommodation is now available." This last part of the recommendation was due to the report of Dr. H. E. Cuff, the medical officer of the Board for general purposes, who states that there is adequate accommodation in the metropolitan workhouse infirmaries for pauper cases of measles. What is wanted is accommodation for cases from the poor classes, not necessarily paupers. As to the feasibility of treating measles and whooping-cough in the same hospital with other infectious fevers, Dr. Cuff thinks this can be done without any risk of interchange of infection between the different wards, adding that he considers the measures of disinfection required would be simple and inexpensive, while apparently the only alteration in the internal arrangements of the hospitals would be the allocation of separate receiving rooms. Dr. J. Kerr is quoted by Dr. Cuff, in his appendix to the committee's report, as stating that the isolation of measles in hospital can be more than justified as a means of saving the lives of the poor. In accordance with the desire of the subcommittee Dr. Cuff addressed a circular letter on the subject to the medical officers of health of 21 of the largest towns in England and Scotland. Of the replies he received in time for use in his report, 13 were in favour of isolation for measles and 5 against. Of these five only one—Mr. C. H. Tattersall of Salford—had seen the isolation of measles practised for a time and abandoned on account of its spreading to wards occupied by other diseases.

The Asylums Board also adopted a recommendation to make arrangements for the reception of cases of puerperal fever in their hospitals. The committee stated that it is advised that such cases can be safely admitted to the same hospital with other infectious diseases, and are in some hospitals treated in the same wards as cases of enteric fever, while there is no difficulty in the way of receiving non-pauper cases. It also stated that the weight of testimony is that the reception of these cases into hospitals is advantageous to the patients and removes a possible source of danger to others. On the subject of treating pulmonary tuberculosis the committee says it agrees with Sir Arthur Downes, who had given it as his opinion that the Asylums Board had no spare accommodation which could without serious difficulties be turned over to this class of case, either in the early or advanced stages.

Long Reach Hospital and the shore buildings adjacent to it are to be permanently reserved for small-pox cases, but the additional accommodation for these cases at the Joyce Green and Orchard hospitals is to be done away with. The committee says that experience has so fully established the fact that high numbers of small-pox correspond with low numbers of scarlet fever, and *vice versâ*, that it is safe to make use of this additional small-pox accommodation for fever purposes whenever the numbers under treatment so require. The Park hospital is to be reserved for sick and debilitated children. This was the only point on which there was a division of opinion among the members of the Board on Saturday, some holding that the Brook hospital was more suitable for the purpose. An amendment to this effect was, however, defeated by 20 votes to 15.

In his appendix to the report Dr. Cuff deals with a suggestion by Sir Arthur Downes that the length of stay in hospital by scarlet fever patients might be shortened. Dr. Cuff points out that during the last three years the average length of stay of these patients in the Board's hospitals has been 63 days, and compares this with other large hospitals as follows:—Leeds City Hospital, 63 days; Liverpool City Hospital, 49 to 56 days; Belvidere Hospital, Glasgow, 55·3 days; Ruchill Hospital, Glasgow, 54·4 days; Edinburgh Hospital, 48·6 days; and Monsall Fever Hospital, 56 days. At some of the smaller hospitals the period of detention is much less, and at Southampton during the last six years the average has been 30 days, while the "return" case-rate there was only 1·9 per cent., which is much lower than the same rate for the Asylums Board hospitals. No recommendation on this subject was, however, framed by the committtee.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8142 births and 3692 deaths were registered during the week ending July 16th. The annual rate of mortality in these towns, which had been so low as 11·0 per 1000 in each of the two preceding weeks, did not exceed 11·4 in the week under notice. During last quarter the annual death-rate in these towns averaged only 12·7 per 1000, and was 1·6 below the mean rate in these towns in the four preceding corresponding quarters. In London during last quarter the death-rate, calculated on the estimated population, did not exceed 12·2 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 4·4 in Willesden, 4·7 in Leyton, 4·9 in King's Norton, and 5·9 in York; the rates in the rest of the 77 towns ranged upwards to 15·8 in Rhondda, 17·7 in Merthyr Tydfil, 18·1 in Rotherham, and 21·3 in Barrow-in-Furness. In London the reported death-rate last week did not exceed 11·1 per 1000. The 3692 deaths registered last week in the 77 towns showed an increase of but 98 upon the low number in the previous week, and included 324 which were referred to the principal epidemic diseases, against 335 and 358 in the two preceding weeks; of these 324 deaths, 105 resulted from measles, 88 from whooping-cough, 68 from diarrhœa, 25 from diphtheria, 24 from scarlet fever, and 14 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was

equal to 1·0 per 1000, against 1·0 and 1·1 in the two preceding weeks. No death from any of these epidemic diseases was registered last week in Willesden, East Ham, Walthamstow, Brighton, or in 15 other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·0 in Bootle, 4·2 in Grimsby, 4·7 in Rotherham, and 4·9 in Barrow-in-Furness. The fatal cases of measles in the 77 towns, which had been 94, 113, and 115 in the three previous weeks, declined again to 105 last week, the highest annual rates, being 1·3 in Merthyr Tydfil, 1·4 in Grimsby, and 4·1 in Barrow-in-Furness. The 88 deaths from whooping-cough showed a further decline of 21 from the numbers in recent weeks, but caused annual rates equal to 1·5 in Burnley, 2·8 in Grimsby, and 4·7 in Rotherham. The deaths attributed to diarrhœa, which had been 53 and 71 in the two previous weeks, declined again last week to 68, but was proportionally most fatal in St. Helen's and Bootle. The 25 deaths referred to diphtheria showed a decline of 3 from the number in the previous week; they included 10 in London and its suburban districts, and 2 each in Stoke-on-Trent, Nottingham, Birmingham, and Hull. The 24 fatal cases of scarlet fever also showed a decline; 4, however, occurred in London, in Liverpool, and in Manchester. The deaths referred to enteric fever, which had been but 7 in the previous week, were 14 last week, of which 3 were returned in Middlesbrough and 2 in Birmingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1353, 1378, and 1439 on the three preceding Saturdays, had further increased to 1530 at the end of last week; 249 new cases of this disease were admitted to these hospitals during last week, against 183 and 188 in the two preceding weeks. The Metropolitan Asylums still contained 3 small-pox patients on Saturday last. Of the 1036 deaths registered in London during last week 131 were referred to pneumonia and other diseases of the respiratory system, against 117 in the previous week, and exceeded by 14 the corrected average number in the corresponding week of the five years 1905–09. The causes of 32, or 0·9 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in Leeds, Bristol, West Ham, Newcastle-on-Tyne, Hull, Nottingham, and in 48 other smaller towns; the 32 uncertified causes of death in the 77 towns last week included 4 in Birmingham and 2 each in Liverpool, Leicester, St. Helens, Preston, Bradford, and Sheffield.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 899 births and 449 deaths were registered during the week ending July 16th. The annual rate of mortality in these towns, which had declined in the six preceding weeks from 14·3 to 12·1 per 1000, was equal to 12·4 in the week under notice. During last quarter the death-rate in these towns averaged 15·4 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 10·0 and 11·2 in Paisley and Perth to 14·7 in Dundee and 22·0 in Greenock. The 449 deaths from all causes in the eight towns during last week showed an increase of 10 upon the number in the previous week, and included but 83 which were referred to the principal epidemic diseases, against 61, 48, and 44 in the three preceding weeks; of these 33 deaths, 13 resulted from diarrhœa, 6 from scarlet fever, 5 from diphtheria, 4 from measles, 3 from whooping-cough, and 2 from "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to but 0·9 per 1000, and was slightly below the mean rate from the same diseases in the 77 English towns; the highest rate from these diseases in the Scotch towns last week was 2·1 in Greenock. The 13 deaths attributed to diarrhœa in the eight towns last week showed a decline of 6 from the number in the previous week, and included 6 in Glasgow, 3 in Dundee, and 2 in Edinburgh. Of the 6 fatal cases of scarlet fever, showing a slight increase upon the numbers in the two previous weeks, 2 occurred both in Glasgow and Greenock. The 5 deaths from diphtheria were fewer by 4 than those in the previous week, but included 2 in Glasgow and 2 in Aberdeen. The 4 fatal cases of measles showed a further considerable decline from recent weekly numbers; and the 3 deaths from whooping-cough included 2 in Glasgow. Of the 2 deaths from "fever," 1 from cerebro-spinal meningitis occurred in Glasgow and 1 of enteric fever in Dundee. The deaths referred to diseases of the respiratory system in the eight towns, which had been 55 and 66 in the two preceding weeks, declined last week to 49, and were 7 below the number in the corresponding week of last year. The causes of 19, or 4·2 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 686 births and 347 deaths were registered during the week ending July 16th. The mean annual rate of mortality in these towns, which had been equal to 16·1 and 17·0 per 1000 in the two preceding weeks, declined to 15·7 in the week under notice, and was lower than in any previous week of this year. During last quarter the annual death-rate in these Irish towns averaged 20·1 per 1000, whereas the mean rate during the same period did not exceed 12·7 in the 77 largest English towns and 15·4 in the eight principal Scotch towns. The annual death-rate during last week was equal to 14·8 in Dublin, 18·1 in Belfast, 18·5 in Cork, 6·0 in Londonderry, 12·3 in Limerick, and 19·5 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns did not exceed 14·2, and showed a further considerable decline. The 347 deaths from all causes in the 22 town districts last week showed a decline of 29 from the number in the previous week, and included 36 which were referred to the principal epidemic diseases, against 39 and 46 in the two previous weeks; these 36 deaths were equal to an annual rate of 1·6 per 1000, and in Belfast it was equal to 3·2; in the 77 English towns the mean rate last week from the same diseases did not exceed 1·0, and in the eight Scotch towns 0·9 per 1000. The 36 deaths from these epidemic diseases in the Irish towns last week included 21 from measles, 5 from diarrhœa, 4 from "fever," 3 from diphtheria, 2 from whooping-cough, and 1 from scarlet fever, but not one from small-pox. The 21 fatal cases of measles showed a decline of 5 from the number returned in each of the two preceding weeks, and included 20 in Belfast. Of the 5 deaths from diarrhœa, 3 occurred in Dublin and 2 in Belfast. The 4 deaths referred to "fever" included 2 of enteric in Cork, 1 of enteric in Dublin, and a fatal case of typhus in Waterford. The deaths in Dublin included 1 each from scarlet fever, diphtheria, and whooping-cough, and those in Belfast 1 each from diphtheria and whooping-cough. The deaths in the 22 towns included 68 which were referred to pneumonia and other diseases of the respiratory system, against 43 and 61 in the two preceding weeks. The causes of 11, or 3·2 per cent., of the deaths registered in the Irish towns last week were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent., and in the eight principal Scotch towns it was equal to 4·2 per cent.

THE SERVICES.

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TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd Lowland Field Ambulance: Lieutenant David G. Davidson to be Captain (dated June 22nd, 1910).

APPOINTMENTS TO THE NAVAL MEDICAL CONSULTATIVE AND EXAMINING BOARDS.

In connexion with the reconstruction of the Medical Consultative Board and the Medical Examining Board the following appointments have been made:—

Medical Consultative Board.—President: The Medical Director-General of the Navy. Civilian Members: Sir W. Watson Cheyne, Sir Dyce Duckworth, and Professor W. J. R. Simpson. Naval Member: Inspector-General Howard Todd.

Medical Examining Board.—President: The Medical Director-General of the Navy. Members: Dr. James Galloway, Dr. H. D. Rolleston, Mr. G. L. Cheatle, and Mr. L. A. Dunn. Secretary: Fleet-Surgeon J. L. Smith.

DEATHS IN THE SERVICES.

Inspector-General of Hospitals and Fleets Robert Grant, C.B., at Ruthven, Ballindalloch, Banffshire, on July 14th, aged 68 years. He entered the Royal Navy as surgeon in 1868, became staff-surgeon in 1879, fleet-surgeon in 1888, deputy-inspector-general in 1897, and inspector-general in 1901. He retired in 1902. He was surgeon on the *Nora* and served on shore with the 88th Regiment during the Kaffir War of 1877. He was specially promoted for services when in charge of small-pox patients on the *Boadicea*, 1879. As staff-surgeon he landed during the Zulu War, accompanied the Naval Brigade to Port Durnford (mentioned in despatches, Zulu medal); served during the naval and military operations in the Eastern Soudan, 1884, in the *Orontes*. He was medical officer in charge of transports and accompanied the Royal Marine Battalion in action at Tamaniel (mentioned in despatches for his admirable arrangements for the sick and wounded, Suakin clasp).

THE ROYAL VISIT TO ALDERSHOT.

In connexion with their Majesties' visit to Aldershot last week the King and Queen made an inspection of the hospital arrangements at the camp and evinced considerable interest in the open-air treatment of pulmonary tuberculosis. Surgeon-General Sir T. J. Gallwey, the principal medical officer at Aldershot, had the honour of dining with their Majesties on July 12th.

EXAMINATION FOR STAFF-SURGEON.

On August 2nd and 3rd an examination for the rank of Staff-Surgeon will be held at the Royal Naval Hospital, Stonehouse, Plymouth. The examination will be from 10 A.M. to 12 noon and from 2 P.M. to 4 P.M.

TERRITORIAL TRAINING.

The 4th Southern General Hospital (Territorial Force) (commanded by Lieutenant-Colonel C. E. R. Rendle), Major H. W. Webber, Quartermaster and Hon. Lieutenant W. H. Scrave, and 44 non-commissioned officers and men commenced a course of 14 days' training at the Military House, Devonport, Plymouth, on July 9th.

DONATIONS AND BEQUESTS.—The Royal Surrey County Hospital, Guildford, has received a gift of £1000 by Miss Helen Crooke, in memory of her father, a former mayor of the town.

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In eight of the principal Scotch towns 899 births and 449 deaths were registered during the week ending July 16th. The annual rate of mortality in these towns, which had declined in the six preceding weeks from 14·3 to 12·1 per 1000, was equal to 12·4 in the week under notice. During last quarter the death-rate in these towns averaged 15·4 per 1000, and exceeded by 2·7 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 10·0 and 11·2 in Paisley and Perth to 14·7 in Dundee and 22·0 in Greenock. The 449 deaths from all causes in the eight towns during last week showed an increase of 10 upon the number in the previous week, and included but 83 which were referred to the principal epidemic diseases, against 61, 48, and 44 in the three preceding weeks; of these 33 deaths, 13 resulted from diarrhœa, 6 from scarlet fever, 5 from diphtheria, 4 from measles, 3 from whooping-cough, and 2 from "fever," but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to but 0·9 per 1000, and was slightly below the mean rate from the same diseases in the 77 English towns; the highest rate from these diseases in the Scotch towns last week was 2·1 in Greenock. The 13 deaths attributed to diarrhœa in the eight towns last week showed a decline of 6 from the number in the previous week, and included 6 in Glasgow, 3 in Dundee, and 2 in Edinburgh. Of the 6 fatal cases of scarlet fever, showing a slight increase upon the numbers in the two previous weeks, 2 occurred both in Glasgow and Greenock. The 5 deaths from diphtheria were fewer by 4 than those in the previous week, but included 2 in Glasgow and 2 in Aberdeen. The 4 fatal cases of measles showed a further considerable decline from recent weekly numbers; and the 3 deaths from whooping-cough included 2 in Glasgow. Of the 2 deaths from "fever," 1 from cerebro-spinal meningitis occurred in Glasgow and 1 of enteric fever in Dundee. The deaths referred to diseases of the respiratory system in the eight towns, which had been 55 and 66 in the two preceding weeks, declined last week to 49, and were 7 below the number in the corresponding week of last year. The causes of 19, or 4·2 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·9 per cent.

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TERRITORIAL FORCE.

Royal Army Medical Corps.

3rd Lowland Field Ambulance: Lieutenant David G. Davidson to be Captain (dated June 22nd, 1910).

APPOINTMENTS TO THE NAVAL MEDICAL CONSULTATIVE AND EXAMINING BOARDS.

In connexion with the reconstruction of the Medical Consultative Board and the Medical Examining Board the following appointments have been made:—

Medical Consultative Board.—President: The Medical Director-General of the Navy. Civilian Members: Sir W. Watson Cheyne, Sir Dyce Duckworth, and Professor W. J. R. Simpson. Naval Member: Inspector-General Howard Todd.

Medical Examining Board.—President: The Medical Director-General of the Navy. Members: Dr. James Galloway, Dr. H. D. Rolleston, Mr. G. L. Cheatle, and Mr. L. A. Dunn. Secretary: Fleet-Surgeon J. L. Smith.

DEATHS IN THE SERVICES.

Inspector-General of Hospitals and Fleets Robert Grant, C.B., at Ruthven, Ballindalloch, Banffshire, on July 14th, aged 68 years. He entered the Royal Navy as surgeon in 1868, became staff-surgeon in 1879, fleet-surgeon in 1888, deputy-inspector-general in 1897, and inspector-general in 1901. He retired in 1902. He was surgeon on the *Flora* and served on shore with the 88th Regiment during the Kaffir War of 1877. He was specially promoted for services when in charge of small-pox patients on the *Boadicea*, 1879. As staff-surgeon he landed during the Zulu War, accompanied the Naval Brigade to Port Durnford (mentioned in despatches, Zulu medal); served during the naval and military operations in the Eastern Soudan, 1884, in the *Orontes*. He was medical officer in charge of transports and accompanied the Royal Marine Battalion in action at Tamaniel (mentioned in despatches for his admirable arrangements for the sick and wounded, Suakin clasp).

THE ROYAL VISIT TO ALDERSHOT.

In connexion with their Majesties' visit to Aldershot last week the King and Queen made an inspection of the hospital arrangements at the camp and evinced considerable interest in the open-air treatment of pulmonary tuberculosis. Surgeon-General Sir T. J. Gallwey, the principal medical officer at Aldershot, had the honour of dining with their Majesties on July 12th.

EXAMINATION FOR STAFF-SURGEON.

On August 2nd and 3rd an examination for the rank of Staff-Surgeon will be held at the Royal Naval Hospital, Stonehouse, Plymouth. The examination will be from 10 A.M. to 12 noon and from 2 P.M. to 4 P.M.

TERRITORIAL TRAINING.

The 4th Southern General Hospital (Territorial Force) (commanded by Lieutenant-Colonel C. E. R. Rendle), Major H. W. Webber, Quartermaster and Hon. Lieutenant W. H. Screve, and 44 non-commissioned officers and men commenced a course of 14 days' training at the Military House, Devonport, Plymouth, on July 9th.

DONATIONS AND BEQUESTS.—The Royal Surrey County Hospital, Guildford, has received a gift of £1000 by Miss Helen Crooke, in memory of her father, a former mayor of the town.

Correspondence.

"Audi alteram partem."

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—Last May I forwarded to the President of the General Medical Council a letter, signed by several medical practitioners, praying the Council to take measures against a certain notorious advertising quack for repeated transgressions of the Medical Act. The letter was acknowledged by the President, who said that it had been sent on to counsel for advice. The May session of the Council is long past, but we still remain without any further reply to our letter, and, worse still, without any steps whatever (so far as we are aware) having been taken to remedy the crying scandal of which we complain.

Long experience teaches that the General Medical Council is of no service to the profession whose interests it is supposed to safeguard and whose registration fee it gladly pockets. Surely, Sir, it is time that the profession took into their own hands the suppression of notorious quacks who advertise daily in respectable papers and head their advertisements with such sentences as "Scene in a West-End Doctor's Consulting-room!" It is my intention, after the Long Vacation, to endeavour to found a Society for the Suppression of Quack Advertisements, and I shall be glad to hear from any members of the profession who will support me in this work.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY.

59, Queen Anne-street, Cavendish-square, W., July 15th, 1910.

*** We shall support with pleasure any organised movement against the gross and dangerous abuse of the public credulity exhibited in quack advertisements. Our correspondent, however, will find that the powers of the General Medical Council are defined and limited by the Medical Acts; it is these which require reformation, for they often leave the Council powerless to do anything in directions where it would like to be active.—ED. L.

A PRELIMINARY NOTE ON THE TREATMENT OF RODENT ULCER BY SOLID CARBON DIOXIDE.

To the Editor of THE LANCET.

SIR,—I am sorry Dr. McCulloch has had a fruitless search for my theory which seems to have disturbed him so much; this is partly my fault, as I find that I inadvertently gave the wrong reference to a previous paper. It should have been the *Clinical Journal*, Jan. 5th, 1910. But if Dr. McCulloch is expecting to find a "Morton's theory" couched in profoundly scientific and polysyllabic language I am sorry to disappoint him. Perhaps I was wrong in using the word "theory" as being too pretentious a term, and a simpler one such as "idea" would meet with his approval better. If he will kindly re-read the second sentence (which, by the way, he has quoted only partially and inaccurately) of the third paragraph of my letter substituting the word "idea" for "theory," he will perhaps find all I meant to say about my "theory."

Dr. McCulloch has not told us how great has been his experience in the use of solid carbon dioxide, and in the absence of any information on this point he must not be offended if I assume from the statements in the second paragraph of his letter that it cannot be very extensive; otherwise I do not see how he could commit himself to what he has said there. Stripped of unnecessary verbiage, he asserts that while refrigeration is bound to bring about a wholesale destruction of both normal and abnormal cells only the latter are caused to disappear by one or other of the different forms of irradiation.

It is generally admitted that the abnormal cell succumbs to the influence of the X rays or other physical force more readily than a healthy cell, because of its lower vitality, hence the so-called "selective" action of these radiations. In view of this fact it is not easy to see why Dr. McCulloch should deny the existence of a higher resisting power of the normal cells to freezing than is possessed by the abnormal ones. He offers no further proof of this extraordinary assertion than his own statement, which is insufficient as well as illogical. If his theory were correct, it would mean that every application of solid carbon dioxide would be followed by necrosis and sloughing. Such a result will follow an overdose of carbon dioxide, and the same thing will follow a similar abuse of radium or the X rays.

Accuracy of dosage is of the first importance with carbon dioxide as with any other physical or chemical therapeutic agent, and every degree of reaction, from a simple passing hyperæmia to a complete necrosis, is possible to one who has overcome the difficulties of the proper time and pressure to be employed in any given case. Dr. McCulloch fears for "the histological and cosmetic result." If he will attend the Dermatological Section at the annual meeting of the British Medical Association on July 28th, at 9.30 A.M., I shall be pleased to draw his attention to at least one case in which the result is as good as anything likely to be achieved by radium under similar conditions.

I am, Sir, yours faithfully,

REGINALD MORTON.

Upper Wimple-street, Cavendish-square, W., July 16th, 1910.

THE USE OF FILTHY FLOCK FOR BEDDING.

To the Editor of THE LANCET.

SIR,—As you are no doubt aware, I have for the past eight or ten years taken a very keen interest in all that appertains to the manufacture of flock, and on my advice one large firm at any rate has installed apparatus for the efficient sterilisation of its material used in the manufacture. As I have many times stated, I am strongly of opinion that it is essential that all the material used in the production of woollen rag-flock for beds, mattresses, upholstery, &c., should be sterilised prior to manufacture, and that the only practical process for this purpose involves the use of high-pressure super-heated steam. Washing in cold or tepid water, whilst removing the impurities ordinarily designated by the word "dirt," neither destroys infective germs nor their spores; nor does any ordinary drying process attain that end. I consider the report of the Local Government Board an exceedingly half-hearted attempt to deal with what is, to my mind, a very important question. So impressed am I with the importance of dealing seriously with this matter that the authorities at Guy's Hospital have on my suggestion fitted up a room for the effective disinfection (not necessarily sterilisation) of the mattresses of the beds between their use by successive patients. If I consider this necessary in a well-organised and cleanly institution, my opinion of the value of merely washing the filthy material that is converted into flock, including, as it sometimes does, bandages and dressings in all degrees of filthiness, may readily be inferred.

I am, Sir, yours faithfully,

JNO. EYRE.

The Bacteriological Laboratories, Guy's Hospital, S.E., July 2nd, 1910.

REBATE ON PETROL DUTY TO MEDICAL PRACTITIONERS.

To the Editor of THE LANCET.

SIR,—I should be glad to learn through the medium of your columns if any medical practitioner owning and using a motor car has obtained any return of money for rebate on petrol duty. I have filled in all forms, signed them in the presence of, and left them with, the revenue officer, and there the matter has rested for months.—I am, Sir, yours faithfully,

July 6th, 1910. 8 H.P.

GOLF AT BRISTOL.—An interesting match was recently played at Long Ashton, near Bristol, between the members of the clerical and medical professions in Bristol and district, victory remaining with the latter team.

BRISTOL AND THE WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

University of Bristol.

AT a recent meeting of the University Council Dr. Walter C. Swayne, professor of obstetrics and gynæcology, presented to the Council on behalf of the Misses Caroline and Frances Swayne two bedell's staves, each about 5 feet in length, of solid ebony, and mounted with silver. At the head of one is displayed an open book, the recognised badge of a university; at the head of the other, the sun in splendour, one of the armorial bearings of the Wills family. Regulations were adopted by which the evening instruction offered by the University may be had free by persons recommended for that purpose by the city education committee, by the Workers' Educational Association, or by a recognised trade union, the University retaining the right of requiring a test of educational fitness for attendance. Ordinances were passed for the association of the Royal Agricultural College, Cirencester, with the University, for the purpose of university instruction in practical agriculture and forestry (research in such subjects being provided for in Bristol itself); also for similar association of two theological colleges in Bristol for the purpose of instruction in theological subjects accepted for the B.A. degree. Of these, the Western College has excellent buildings not far from the main block of University buildings; while the Baptist College, at present in the city, is to be rebuilt on a site separated only by a road from the large block of chemical and physiological buildings at present in course of erection. The proposals of the education committee for the administration of city scholarships to the University have been accepted by the city council.

The M.B., Ch.B. Bristol.

The final examination for the M.B., Ch.B. Bristol has just been held for the first time. There were 14 candidates, all of them already holding other qualifications, and almost all of them old students of the Bristol Medical School; of these, eight qualified for the degree and one passed in Part I. of the examination. The external examiners were as follows: Medicine, Dr. T. R. Glynn; surgery, Mr. A. Pearce Gould; obstetrics, Sir William J. Smyly; forensic medicine and toxicology, Dr. R. B. Wild; materia medica and pharmacology, Dr. R. B. Wild; pathology, Professor G. Sims Woodhead.

The Pathological Society of Great Britain and Ireland.

On July 8th and 9th, the Pathological Society of Great Britain and Ireland held its annual meeting in the University premises. There was an attendance of about 40 members, Professor I. Walker Hall presiding. Many interesting and important communications were made, and an admirable collection of specimens was on view. The society dined on the 8th at the Clifton Down Hotel and spent a pleasant evening; and on the 9th, luncheon was provided at the Queen's Hotel by members of the General Hospital and Royal Infirmary staffs.

Lady Greville Smyth and the Bristol Museum.

Some months ago reference was made in these columns to the munificence of Lady Greville Smyth, who gave the late Sir Greville Smyth's valuable entomological collections to the Bristol Museum, together with £2000 for the equipment of a room to house them. This gift has been followed by the offer of £1500 for the furnishing of a room adjoining the Greville Smyth room in which the entomological specimens are arranged for the display of botanical specimens, showing various diseased conditions of plants and their causes, as well as for the setting out of natural history specimens for which no adequate space exists at present. As was explained before, the museum adjoins the University buildings, where agricultural research is carried on, so that the "Dame Emily Smyth" room of botany and economic biology will be readily accessible to those who are investigating such matters, and will thus increase the efficiency of the agricultural research department of the University.

The Lord Mayor of Bristol's Hospital Sunday Fund.

The final distribution of this fund was recently made, the total distributed being £1800, a sum which has only twice been exceeded. A small balance was carried forward to 1911.

The City Fever Hospital, Ham Green.

The Lord Mayor, the Lady Mayoress, the Sheriff, and various members of the city council were recently invited by the health committee to visit and inspect the city fever hospital at Ham Green, which lies several miles below the city itself on the south bank of the Avon. The hospital (the work of which is supplemented by other smaller ones in the city and its outskirts) holds 135 beds, allowing 2000 cubic feet of air space per bed; but, as Mr. Colston Wintle, the chairman of the health committee, told the visitors, the pressure is such that 200 patients have to be accommodated sometimes, while the average for the last two or three years has been 150.

Medical Inspection of Schools in Bristol.

A change in the administration of medical inspection of school children in Bristol has received the sanction of the city council. It represents a compromise between the wishes of the Board of Education and those of the local authorities, the former asking for alteration in one particular of the scheme hitherto in use, which, in the opinion of the city education committee, has worked satisfactorily. Till now there have been five medical men giving part of their time to the work; in future also there will be five, but one will give rather more time than the others, and will be called "school medical officer." He will superintend the whole scheme and be responsible for annual and other reports, the proposed salary being £200 a year. The change will cost £70 a year more than heretofore.

Midwives in Cornwall.

At the last meeting of the midwives committee of the Cornwall county council held at Truro under the chairmanship of Sir A. Quiller Couch, Mr. J. M. Nicholls, M.R.C.S. Eng., J.P., was elected chairman. It was stated that there were districts in the county quite destitute of midwives, and that several women were acting illegally and were liable to punishment under the Act. After some discussion it was resolved to make more inquiries of medical officers in reference to the Midwives Act, the chairman remarking that anyone who examined the books of the medical officers could see there was no real system of inspection carried out.

The Part-time Medical Officers of Health.

At the conference of the Urban District Councils Association held at Ilfracombe last week under the presidency of Sir Thomas Roe, M.P., it was resolved:—

That in the opinion of this conference the policy of appointing part-time medical officers of health is temporarily necessary in those districts whose population and area do not justify the appointment of a whole-time officer.

Exeter City Asylum.

At a recent meeting of the Exeter city council it was reported that the sum of £472 had been paid into the borough fund as the result of the working of the city asylum for 1909. This amount was less than it has been for some years. Since the asylum was opened, about 23 years ago, the borough fund has received £43,000 from the institution.

July 19th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Health of the City.

THERE has been recently a remarkably low rate of mortality. Until last month a death-rate below 10 per 1000 had never been recorded, but for the week ending June 11th the return was 9·7. This record, however, was broken for the week ending July 9th, when the rate was 8·8 per 1000. The death-rate for the half-year ending June 30th was 14·3 per 1000, the lowest ever recorded in the first half-year, the average for the previous ten years being 18·4. The birth-rate has continued to decline, having been 27·0 as compared with 27·8 last year, the mean rate in the ten preceding years being 31·1.

Sanatorium Treatment of Consumptives.

The number of patients treated at the municipal sanatorium at Salterley Grange during the half-year ended June 30th was as follow: Under treatment at beginning of half-year, 29; admitted during half-year, 42; discharged,

36; remaining under treatment, 35. Dr. J. D. Stanley has examined 31 of the discharged patients during the quarter ended June 30th. Of these, 11 were recent discharges and 20 had been examined one or more times. Four were classed as "very greatly improved," there being increase of weight, no, or only occasional, cough, and all were at work or ready for employment. Two out of three men were on full wages. Fourteen were classed as "much improved." In all cases the difference due to treatment was very great. Two men were receiving more wages than before; some were back at the same rate of pay. With one exception all stated that they were able to work. Six were classed as "improved." In these cases cough and other symptoms were less marked than before treatment, but three had lost weight. One case was found to be stationary and unable to resume work. Six cases were "not improved." In all there was loss of weight with increase of symptoms. Their unsatisfactory condition was attributable to bad home conditions or work. Several of the patients were brass-casters or engaged in similar dusty trades, and on their return they find it almost impossible to obtain suitable employment. Some have been out of work for considerable periods.—Since the council sanctioned the use of the Yardley-road emergency hospital for use as an institution for the educational treatment of consumption the necessary alterations have been put in hand, and it is hoped that patients will be admitted in October.—The Hospital Saturday Committee announces that the site of the proposed Sir William Cook Memorial Sanatorium has been chosen. It is situated on Romsley Hill, between the Lickey and Clent hills, at a point ten miles from the city. The site is from 700 to 800 feet high, faces south, commands beautiful views, and is in every way ideal. The area of the site is 25 acres, and it has been presented free by an anonymous friend. It is intended to provide for 50 beds.

Care of the Feeble-Minded.

The Birmingham, Aston, and King's Norton Joint Poor-law Establishment Committee has issued a report containing the second year's experience of the Monyhull Colony for Epileptics and Feeble-Minded. The object of establishing the colony was to provide an institution where proper and adequate classification could be secured for certain classes of epileptic and feeble-minded persons, and where special treatment could be provided. The committee claims that after two years the colony has passed out of the experimental stage, and has reached a position of efficiency. From the outset the colonists have been usefully employed. The male colonists have been employed as follows: on the lawns and greenhouses, 3; in orchard and kitchen garden, 10; in cowsheds and yard, 4; with carpenter, 2; with hedger, 1; on the grounds, 10; on the farm and wood-chopping, 14; total 48. The female colonists are employed as follows: sewing-room, 25; laundry, 21; general work, 34; poultry, 3; housemaid's work, 5; cooking, 8; total, 96. After working hours the colonists have outdoor games—cricket and football for men, skipping and round games for women. In the winter they are instructed in reading, singing, physical drill, frame-making, and fretwork. A weekly concert is also given. The average cost per week per colonist works out at 12*s.* 2¾*d.* In the original scheme children were excluded from the colony, but steps are being taken now to provide accommodation for them. The report of Dr. B. F. Jordan, the medical officer, upon the physical and mental condition of the inmates is highly encouraging.

Health of Warwickshire School Children.

Dr. Bostock Hill, the medical officer to the Warwickshire education committee, has issued his report for 1909. Of 9388 children, the clothing in 332 cases is described as "bad," by which is meant insufficient, for its purpose. In 1101 it was "passable," and in 7955 it was considered to be all that was necessary. As regards nutrition, 1527 children were described as thin, but there is no material evidence that, except in very few instances, the children were suffering from insufficient food, though many of them did not receive suitable food, but that there is an inability to supply children with sufficient nourishment to a marked extent has, he thinks, been disproved. In 287 cases more than 7 teeth were carious, in 1513 4 to 7 teeth were carious, and in 3413 cases 1 to 3 teeth required dental aid. The number of bad teeth found in the southern division of the county was much larger than in the northern, especially among the boys. As regards intelligence, 152 children were described as "medium," 341 as "dull," and 57 as "defective"; the bulk of these were found among what are termed special cases, the children having been found by the teachers difficult to educate. 543 children were found to be a danger to others or incapable of receiving education and were excluded from school. More than half of these, 342, were suffering from ringworm, 34 had impetigo, and 44 scabies. 58 were excluded owing to the verminous condition of the head or body.

University of Birmingham.

The annual degree congregation was held on July 9th in the great hall of the new buildings at Edgbaston opened a year ago by King Edward. Official degrees of M.D. were conferred on Sir Robert Simon, professor of therapeutics, and Dr. Peter Thompson, professor of anatomy. The degrees of Bachelor of Medicine and Bachelor of Surgery were conferred upon seven recipients. Professor R. Saundby has been elected to represent the University on the General Medical Council for another period of five years. Dr. Thomas Wilson has been appointed Lecturer in Midwifery and Diseases of Women, and Professor Bostock Hill has been appointed to represent the University at the Conference on School Hygiene to be held in Paris on August 7th.

July 19th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Health of Liverpool.

Dr. E. W. Hope, medical officer of health, informed the health committee on July 14th that the first half of the current year disclosed the lowest rate of mortality in the history of the city. He added that if this gratifying state of things continued for the remainder of the year the 12 months would be memorable from a hygienic point of view. Last week the death-rate of the city fell as low as 14·2 per 1000.

New St. Paul's Eye Hospital and George Edward Walker Memorial.

The foundation-stone of the new St. Paul's Eye Hospital and George Edward Walker Memorial, to be erected at the junction of Oldhall-street and King Edward-street, will be laid on July 20th by the Earl of Derby. The new hospital will take the place of the present building in St. Paul's-square, which is both out of date and too small for the demands upon it. It will also form a fitting memorial of the late Mr. George Edward Walker, who gave so many years of devoted labour to the institution, of which he was also one of the founders.

Lancashire Education Authority and Unhealthy Children.

At a meeting of the Lancashire education authority held on July 18th, it transpired that 160,000 children attended the Lancashire elementary schools; of 60,000 examined comparatively few were absolutely sound. 12,000 suffered from skin diseases alone; 11,000 suffered from defective vision, many of whom were unprovided with spectacles. The elementary committee proposed that the medical inspectors should be instructed to prescribe spectacles for children suffering from defective vision, and thus enable them to go to certified opticians and obtain the right spectacles. It was proposed also to recommend certain opticians in the county, and to make arrangements for provision of spectacles at a reasonable cost. The committee, however, gave the opticians clearly to understand that it would not undertake any responsibility for payment of the cost of the spectacles. Assuming that the parents are unable to pay for the cost of the spectacles, how are the recommendations of the elementary committee to be carried out?

The Health Congress at Birkenhead.

The annual congress of the Royal Institute of Public Health was inaugurated in the Birkenhead town hall on July 18th, where, after a reception by the chairman of the health committee, the delegates gathered in the assembly room. Amongst those present were the Mayor of Birkenhead (who presided at the outset), the President of the Congress (Mr. W. H. Lever), the Earl of Meath, Mr. Henry Vivian, M.P., Sir Lauder Brunton, the High Sheriff of Cheshire, Sir William Ramsay, Sir Alexander Binnie, Sir

John M'Fadyean, Sir Thomas Oliver, Mr. J. W. Alsop, the Pro-Chancellor of the University of Liverpool, Sir John Moore (Dublin), Sir James Barr (Liverpool), Sir William Baxter, Surgeon-General G. J. H. Evatt, Professor Letts, Professor Adshead, Professor Geddes, Professor E. W. Hope, the Rev. Canon Knox, Vicar of Birkenhead, and Dr. R. S. Marsden (general secretary). Professor W. R. Smith, principal of the Royal Institute, then installed Mr. W. H. Lever as President of the Congress. In the course of his address on the relation of health, work, and life, Mr. Lever said that every diligent employee had a moral and indisputable right out of the product of his labour to live in a decent home, and to possess the opportunity to bring up his children in decent environment. It was as inexpedient from a business standpoint as it was wrong from a purely moral standpoint for capital and management to fail to discharge their obligations to an employee. An industrial system stood self-condemned when one-ninth of the population enjoyed one-half of the total income and possessed more than nine-tenths of the accumulated wealth of the country. The lifting of the employee from the lower level of the wage-drawer to the higher level of the profit-earner improved his efficiency, increased his capacity for intelligent and profitable employment, and was found to relieve the excessive strain of modern competition, now wholly borne by the employer. The conference is divided into the following sections: preventive medicine and vital statistics; chemistry, bacteriology, and meteorology; industrial and school hygiene; municipal and county engineering; comparative pathology; veterinary hygiene; and town-planning and municipal architecture. Sir Lauder Brunton, president of the first section, pointed out in his presidential address the larger place that bio-chemistry was taking in pathological inquiry. Professor Hope will advocate a quinquennial census and Professor Benjamin Moore will discuss the nationalisation of the public health service. Mr. and Mrs. Lever will give a garden party at Thornton Manor, followed in the evening by a mayoral reception at the town hall of Birkenhead. River trips by the corporation steamers are also offered.

July 20th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Annual Report of the Medical Officer of Health of Edinburgh.

THE annual report of the public health department of the city of Edinburgh for the year 1909 shows the death-rate at the satisfactorily low figure of 13·4 per 1000, as compared with 13·3 in 1908. When there are included the deaths of persons belonging to the city who have died elsewhere, as is now required by the Local Government Board, the death-rate amounts to 14·3 per 1000. The deaths from infectious diseases numbered 2216, as against 2743 in 1908. The deaths from scarlet fever, diphtheria, and typhoid fever showed a marked diminution, the total cases of typhoid fever numbering only 39, five of which were fatal. There was a slight increase in the number of deaths from whooping-cough, but the death-rate for that disease is considerably below the average for Scotland during the past 30 years. Deaths from measles amounted to 57, as compared with 78 in 1908 and 164 in 1907. An effort was made to accommodate as many cases of measles as possible in the city hospital. Cerebro-spinal fever accounted for a few deaths, but the disease has almost disappeared from the city. The death-rate from phthisis, which became a notifiable disease in March, 1907, was the lowest yet recorded. The prevention of the spread of phthisis is being actively taken in hand and it is expected that marked results will shortly become apparent.

Medical Officer for the County of Fife.

Mr. Hugh A. Macewen, M.B., Ch.B. Glasg., D.P.H. Lond., D.P.H. Camb., assistant medical officer for Cumberland, has been appointed medical officer of health for the county of Fife, in succession to Dr. T. F. Dewar, who has received an appointment under the Local Government Board. The appointment was unanimous. The salary attaching to the office is £611. Dr. Macewen is a son of Sir William Macewen of the University of Glasgow.

The Salary of the Medical Officer of Health of Aberdeen.

At a meeting of the public health committee of the Aberdeen town council held on July 13th there was under consideration a report by a subcommittee recommending an increase of £100 in the salary of Dr. Matthew Hay, the medical officer of health, in consequence of the increase which has taken place in his duties. It was agreed to defer consideration of the matter to a special meeting of the committee to be held this week.

Aberdeen University Court and the Medical Ordinance.

The Aberdeen University Court met on July 11th. Professor Matthew Hay said that when the new ordinance in medicine was before them three months ago they took objection to the power proposed to be included in it for the first time by the University of St. Andrews to reduce the number of attendances in connexion with the various departments of study. They, acting in common with other Scottish Universities, took objection to that, and the University of St. Andrews seemed to be satisfied with the propriety of their objections, and had now resolved to alter the ordinance, and had submitted to them that day an ordinance which contained that alteration. In other words, the power to diminish the number of attendances had been omitted, and he now proposed that the University Court should withdraw any objections it formerly took to the ordinance. This was agreed to. The following were appointed additional examiners:—Botany: Otto V. Darbishire, B.A., Ph.D., lecturer in botany, Armstrong College, Newcastle-on-Tyne. Zoology: E. W. McBride, M.A., D.Sc., LL.D., F.R.S., professor of zoology, Imperial College of Science, South Kensington. Chemistry: S. J. Shand, B.Sc., officer in charge of the geological department, Royal Scottish Museum, Edinburgh. Medicine: Harry Rainy, M.A., M.D. Edin., of Edinburgh. Midwifery: Harry O. Nicholson, M.D. Aberd., of Edinburgh. Medical Jurisprudence and Public Health: John Wright Mason, M.D. Aberd., medical officer of health, Hull. Diploma in Public Health: John J. Buchan, M.D. Glasg., medical officer of health, St. Helens.

The University of Aberdeen: Summer Graduation.

The summer graduation at the University of Aberdeen took place in the Mitchell Hall, Marischal College, on July 13th. Seven gentlemen received the degree of M.D., 19 those of M.B., Ch.B., and 6 the Diploma in Public Health. The Struthers gold medal in anatomy was awarded to Mr. John Douglas Fiddes, M.A., B.Sc., M.B., Ch.B. The John Murray medal and scholarship in medicine was awarded to Mr. Robert Richards, M.A., M.B., Ch.B., as the most distinguished graduate in medicine of the year.

July 19th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Physicians of Ireland.

AT a special business meeting of the President and Fellows of the Royal College of Physicians of Ireland the following resolution has been unanimously adopted:—

That the College cannot permit Dr. J. Magee Finny to retire from the King's Professorship of the Practice of Medicine without expressing their warm sense of the zeal and ability with which Dr. Finny discharged the duties of the professorship, including that of physician to Sir Patrick Dun's Hospital, for a period of 28 years.

Before the meeting concluded Dr. James Craig was, as was stated in THE LANCET last week, elected King's Professor of the Practice of Medicine in succession to Dr. Finny.

Old Age Pensions and the Poor Rates.

Local authorities all over the country are making strong protest against the recent proposal of Mr. Lloyd George to make the poor-rates pay part of the expense of old age pensions. It was announced some time ago that the Government intended to remove the pauper disqualification clause from the Old Age Pensions Act, so that those who are debarred at present by being inmates of workhouses or in receipt of out-door relief, would be enabled to enjoy pensions. This decision was warmly welcomed, but the Chancellor of the Exchequer more recently made a statement which has roused alarm. He announced that boards of guardians will be called on to pay a corresponding amount to what they now expend in out-door relief to, and maintenance

in workhouses of, paupers over 70 years of age who become entitled to pensions on Jan. 1st, 1911. It is pointed out that by this means the local bodies will be subjected to a perpetual charge without revision, and probably considerably in excess of what they would have to pay as time goes on if things took their natural course. The number of old people in Ireland is proportionally large, but it is progressively diminishing, and the expenditure of boards of guardians on persons over 70 would become less year by year, both because of this diminution and because in the future many would enjoy old age pensions, who, but for the Act, might have come on the rates for maintenance. In passing the Old Age Pensions Act Parliament pledged itself that the expenses of the Act were to come from the Imperial Exchequer. Local bodies in Ireland regard Mr. Lloyd George's new scheme as a plan to make the rates contribute a large proportion of the expense.

Notification of Births Act in Dublin.

At a recent meeting of the Dublin corporation a motion to adopt the Notification of Births Act of 1907 was proposed and carried. Alderman Dr. J. C. McWalter opposed the motion, maintaining that the Act would be unworkable and that it dealt with an evil which did not exist in Dublin. The Act will place a new unpaid duty on the shoulders of medical men, and there is no reason to suppose that the municipal authorities will make any use of the information supplied them for the purpose of taking any action directed towards diminishing infant mortality.

Presentation to Sir G. P. O'Farrell.

In the Privy Council Chamber, Dublin Castle, Sir G. P. O'Farrell, M.D., on his retirement from the post of Inspector of Lunatics, was presented by his fellow-workers in the public service with a handsome eighteenth-century half-oval Sheraton satinwood table, and a silver inkstand and candlesticks, as a mark of their appreciation of his efficiency and humanity as a lunacy administrator, as well as of his private worth. The Lord Chancellor, who presided and presented the gifts, referred to the great changes that had been effected during the past 20 years in the care and treatment of lunatics, whereby a largely increased amount of comfort—it might be said of happiness—had been brought into the lives even of those whose mental conditions did not admit of cure. These had been brought about largely by the joint efforts of Sir George O'Farrell and his colleague, Dr. E. M. Courtenay, whose term of office was, he said, happily not yet terminated.

The Belfast Measles Epidemic.

The epidemic of measles in Belfast still continues with a very large mortality. During the week ending July 9th (the latest official return from the Registrar-General) 24 deaths from measles occurred in Belfast, while in the rest of Ireland during the same period there were two only deaths—one in Dublin, the other in Londonderry.

Sanitary Congress in Belfast.

The public health committee of Belfast has recommended the city council to extend an invitation to the Royal Sanitary Institute to hold its annual meeting in Belfast in 1911. The invitation is to be presented at Brighton, where the institute meets this year. Dr. Samuel Agnew, medical officer of health of Lurgan, has written to the daily press urging that, following the example of Leeds, the city council of Belfast should endeavour to bring about a joint congress in which both the Royal Sanitary Institute and the Royal Institute of Public Health should coöperate. In this way they would really have a thoroughly representative single congress in one place instead of two smaller meetings at different parts of the United Kingdom.

July 19th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Congress of German Scientists and Medical Men.

THE Eighty-second Congress of German Scientists and Medical Men will meet at Königsberg in East Prussia from Sept. 18th to 24th. There will be two general meetings, held respectively on the 19th and 20th. Addresses will be delivered in the general meetings by Professor Külpe of Bonn on the Theory of Perception Applied to Natural Science, by Professor Cramer of Göttingen on Puberty and School Education, by Dr. Tornquist of Königsberg on the Geology of East Prussia, by Professor Planck of Berlin on the Connexion between Modern Physics and the Mechanical Theory of Nature, and by Professor von Monakow of Zürich on the Localisation of Cerebral Function. A joint meeting of the medical and naturalist sections will be held on Sept. 22nd, when papers will be read by Dr. Ach of Königsberg on the Will, and by Dr. Zenneck of Ludwigshafen on the Extraction of Nitrogen from the Air and its Practical Use. The medical section of the Congress will include 18 subsections dealing with the different branches of medicine. The social entertainments will include trips to the Baltic Sea, to the Castle of the German Knights at Marienburg, and to Danzig to visit the new Technical College. Previously to the Congress the tourist committee will arrange a fortnight's trip by steamer, starting from Swinemünde, and touching at Wisby, Stockholm, Helsingfors, Wiborg, St. Petersburg, Riga, and finally at Pillau, from which the members will proceed by special train to Königsberg. English medical men having some weeks to spend at that time would probably find much to interest them at the meeting. Königsberg is a very fine old place with beautiful surroundings, and not far from the Baltic. The lakes and pine forests of East Prussia are famous and form an attractive feature of this district, which is unfortunately out of the way of the average tourist. Further particulars will be given on application by the office of the Congress at 25, Drummstrasse, Königsberg, East Prussia.

The Virchow Monument.

A monument of the late Professor Virchow was unveiled a few days ago on the Carlsplatz in the centre of the medical quarter of Berlin and a few steps from the Charité Hospital, where the deceased had carried on his important pathological studies. The monument previously to its erection had been an object of controversy because the artist, Herr Klimsch, had declined to represent Professor Virchow in the usual manner—wearing a frock-coat and holding some medical instrument in his hand. He had designed a group representing Hercules defeating a monster in order to compare the work of the deceased with that of Hercules. This proposal did not satisfy the committee because there was no personal allusion to the man who was to be commemorated, and notwithstanding their previous agreement they declined to erect it. Finally, another agreement was entered into by which the original group was left unaltered, but two reliefs were to be placed on the pedestal, one being a portrait of Professor Virchow, and the other representing him lecturing. The unveiling ceremony was very impressive, the widow and family being present, together with representatives of the Government, the city, Parliament, the Army Medical Corps, and the medical societies, including the Anglo-American Association of Berlin; a great many medical men also attended. Professor Waldeyer, in the name of the committee, the University, and the Royal Academy of Science, delivered an address in which he eulogised Virchow as a physician, as a biologist, and as a citizen. The Mayor of Berlin then expressed the thanks of the municipality for the beautiful monument by which that part of the city was so greatly embellished. Many wreaths were sent by the various bodies represented at the ceremony.

The New Army Medical College.

The new premises of the Army Medical College were recently opened amid great military display in the presence of the Emperor, who made a speech expressing his satisfaction with the work of the Army Medical Corps. After inaugural addresses by the Minister of War and the chief of the Army Medical Corps, General Staff-Surgeon Dr. von Schjerning, the Imperial party, including the Emperor, was shown over the premises by the Minister and the general staff-surgeon. The new college is described by the *Deutsche Medicinische Wochenschrift* as the finest medical building in Berlin, combining an architectural grace with every requisite for practical utility. It contains rooms for 300 army medical students and for resident army medical officers, as well as accommodation for the general staff-surgeon. The valuable collections of the Army Medical College will now have adequate storage room, which was not the case in the old premises of the college dating from the beginning of the nineteenth century. They include a most complete collection of surgical instruments from early times to the present day, an anatomical and physical collection, a collection of

nursing appliances, and a collection showing the action of modern projectiles on the human body. The library of the college is one of the largest medical libraries, including actually 67,700 books and receiving annually an addition of about 1000 volumes. It is open not only to army medical officers and students but also to civilian medical men-students on application to the director of the college. The statistical department of the college issues various publications, including annual reports on the health of the army and on the bodily condition of recruits, both of which are very valuable. The staff of the college includes one surgeon-general as director, 49 army medical officers of different ranks, one pharmaceutical chemist, and three administrative officials. The students attend classes at the University together with the civilian students, the professors of the University being at the same time professors at the Army Medical College. Special courses in army medical matters are delivered for them by army medical officers. Post-graduate lectures of four weeks' duration for members of the Army Medical Corps have for a long time been given in the college, and it is worth mentioning that these courses, for attendance on which army medical officers have to come to Berlin from every part of Germany, were the first experiment in post-graduate study in this country; post-graduate study for civilian practitioners was instituted many years later. Many celebrated medical men and *savants* have been trained in the college and subsequently resigned their positions in the Army Medical Corps; the late Professor Helmholtz, the late Professor Virchow, Professor Leyden, Professor Behring, Professor Löffler, Professor Gaffky, and Professor Gärtner were former students in the Army Medical College.

Failures of Wassermann's Reaction for Syphilis.

At a recent meeting of the Medical Society Dr. Freudenberg read a paper on Some Failures of Wassermann's Reactions in Syphilis. He described two cases, the first being that of a man who had contracted syphilis in 1897, and after energetic antisyphilitic treatment had married in 1902 and had three healthy children. In 1908 he complained of severe headache, and in January, 1909, he had a Wassermann test applied which proved absolutely negative. The reaction was repeated in April, 1909, at another laboratory and proved positive. When the patient showed marked symptoms of cerebral syphilis samples of his blood were sent to three different laboratories, of which two reported a positive and one a negative result. The second case was that of a young man in whom a large ulcer had developed about a fortnight after coition; this ulcer, however, healed promptly after an operation for phimosis was performed. A Wassermann reaction was then made on Oct. 26th, the result being positive, and on Oct. 29th the same being negative. On Nov. 4th samples of his blood were sent to four different laboratories, of which two reported a negative, one a positive, and one a doubtful result. The patient did not show symptoms of syphilis, but was now quite healthy eight months after the infection. Dr. Freudenberg warned his hearers against neglecting the clinical symptoms and relying exclusively on the results of the Wassermann reaction. In the discussion, which was continued during two meetings of the society, Dr. Wossidlu stated that of 20 cases in which the reaction had been performed simultaneously in three different laboratories in seven only the results had been in accordance with each other; in the remainder different results were reported in the same blood by the different laboratories. Dr. Mühram said that the production of antibodies varied sometimes. Dr. Cohn mentioned cases of tumour in the brain, where, the reaction being positive, the presence of syphilis was suggested and operation was therefore postponed till it became too late. Professor Blaschko said that it was sometimes difficult to decide whether a test was positive or negative. A well-marked reaction only established the presence of syphilis. Professor Wassermann said that many laboratories worked not according to his method but according to a modification of it, and that he declined to be held responsible for them. Of 1000 cases in which the reaction had been made in the manner recommended by him in 98 per cent. the results had been in accordance with the clinical symptoms. The mistakes were not due to the method itself, but to defective systems of applying it; he recommended the establishment of a central institute which might provide laboratories with standard antigens

July 18th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Vital Statistics.

THE Commonwealth Statistician has issued an official year-book for 1910. The estimated population was 4,275,306. The proportion of males to females was 111 to 100. Except New Zealand, this is the highest in the world. The birth-rate was 26·35 per 1000. The death-rate was 11. Of the various States New South Wales shows the lowest death-rate and Tasmania the highest. There were 17 centenarians and one death at 111 years. There were 497 suicides, of whom 413 were men.

Prosecution of a Ship's Surgeon.

The surgeon in charge of R.M.S. *Otway* on the last inward voyage was proceeded against in the magistrates' court at Fremantle by the Commonwealth Federal quarantine authorities, the allegation being that as ship's surgeon he had supplied incorrect information to the port health officer as to a case of illness under his care. A boy who had joined the ship at Colombo became ill on the voyage to Fremantle, and his illness was diagnosed as "sun fever," and this view was concurred in by two medical men who were passengers. Before arrival a rash developed and the boy and his mother were isolated. The case was described as tropical fever, but the port health officer diagnosed it as small-pox. Subsequently a number of other cases developed. The ship's surgeon was committed for trial.

The Dangers of Chloroform Anæsthesia.

In a recent discussion on this subject Dr. C. H. Mollison contributed a personal pathological experience of necropsies upon 36 cases of deaths under anæsthetics. Dr. Mollison said that from this material he concluded chloroform was exceedingly dangerous in the following conditions: 1. Cases in which there is any inflammatory swelling in the neck and throat. 2. Cases where there has been a high temperature for some little time. The heart muscle is in a condition of cloudy swelling and is peculiarly susceptible to $CHCl_3$. These are the cases that frequently die before they are properly anæsthetised. 3. Cases where the heart is seriously embarrassed by internal tension or abdominal pressure. 4. Cases where there has been persistent vomiting. 5. Cases where there is marked dilatation of the heart or undermining of the muscle from degenerative changes. 6. Exophthalmic goitre.

Plague in Sydney.

The past autumn has not been marked by any recrudescence of plague in Sydney. From June, 1909, to April, 1910, the city was quite free from any sign of the disease. Four plague-infected rats were discovered during the last week of April. All four came from within a very limited area, and no cases in human beings have come to light.

Consumption among School Teachers.

Some time ago, in Victoria, sensational statements were made by several shire councillors as to the action of the Education Department in employing consumptive school teachers. The Director of Education points out that among 5000 teachers only 11 have been registered as suffering from the disease, and of these eight are on leave and three have returned to work on the certificate of the Government health officer.

Intermediate Home for Consumptives.

The assistant medical officer to the Victorian Board of Health considers that pressing need is manifest for an institution in which consumptive patients not suitable for early sanatorium treatment and not sufficiently advanced for incurable homes could be accommodated. He suggests a Government farm colony, at which the inmates might grow vegetables and raise poultry, and so become to some extent self-supporting. At present the Government possesses a sanatorium at Greenvale capable of accommodating 80 early cases, and the Austin Hospital for Incurables admits hopeless cases, but there is nothing between these extremes of care except the general hospitals, and these institutions cannot be expected to permit patients to remain indefinitely.

June 11th.

Obituary.

JOHN BART ROUS, M.B., B.S. LOND., L.R.C.P. LOND., M.R.C.S. ENG.

John Bart Rous was born in October, 1878, the only son of Mr. Bart Rous, an architect. He was educated at Felsted School, and having matriculated at the University of London he entered as a student at St. Mary's Hospital in 1896. During his student's career the state of his health necessitated a voyage to Australia, but on his return he settled down immediately to hard work. He obtained the joint diploma of the Colleges in 1903, and took a post as resident in a provincial hospital. In 1905 he obtained his medical degree at the University of London, being placed in the Honours division with distinction in medicine. He served as house physician in his own hospital, and held a few residential posts elsewhere, after which, forsaking the paths of clinical medicine, he became a member of the editorial staff of THE LANCET. We may insert here an impression of Dr. Rous, made as a student upon the hospital to which he was so much attached. Dr. W. H. Willcox writes:—"John Bart Rous was one of the best students of his year at St. Mary's, while he showed himself from the first a man of wide interests and great public spirit. He was extremely able at his clinical work and keenly interested in it, so that most surely had he taken up almost any line of practice he would have been very successful. His temperament was essentially the physician's. He was a man of most kindly nature and loveable disposition, and his deserved popularity amongst his fellow students and colleagues foreshadowed the wide esteem in which he would inevitably have been held in a larger world. He was always the first to lend a helping hand to a friend in trouble, and to one such instance I must allude. It was not a little through Rous's tact and forethought that such steps were taken as resulted in the widow and children of his friend, Dr. J. H. Wells, being provided for, the magnificent response which followed the appeal in THE LANCET to the Wells Testimonial Fund having a direct connexion with the energies of the secretaries, Lord Denbigh and Mr. Lousada, and Rous's proselytising zeal. Rous was always very devoted to his old medical school and was keenly interested in any work which emanated from St. Mary's, so that it is no wonder that he was really loved by those of us who knew him here, while he was regarded by the staff as one of the most brilliant men among us of recent years." Dr. Willcox adds: "It is a very great personal grief to me to have lost such a dear and valued friend, and I am quite sure that this feeling is shared by all the staff at St. Mary's Hospital and by all the fellow students of our dear friend."

In 1907 Rous definitely decided that he would adopt literature as a career, and although he resigned the idea of the active pursuit of his profession with great reluctance, for, modest as he was, he knew that he had it in him to succeed in practice, he threw himself into the life of the journalist with full delight. From a boy he had been fond of all forms of literature. At Felsted he edited the school journal. At St. Mary's Hospital he was connected with the *St. Mary's Hospital Gazette* for a period of four years, at first as sub-editor and later as editor. In this post—a small, but in its way a difficult and important, one—he showed most conspicuous ability, and first proved his peculiar aptitude for a literary career. We are permitted by the courtesy of the editor of the *St. Mary's Hospital Gazette* to quote here from the editorial article which will appear in the next number of the *Gazette*. The words are exactly those that we should ourselves have used, and we are glad that they should be put into our mouths. "For four years he was connected with the *Gazette*, first as sub-editor and later as editor; he served its interests with characteristic energy and a very full measure of success. After a brief regret at his separation from practical medicine his connexion with THE LANCET became a source of great joy and pride to him. He had an intense delight in his work, loving to do even the hack-work to the best of his ability. He grew to reverence, as the true journalist must, the impersonal being of 'the paper,' and to delight to sink his own identity in listening to its voice. He did not live to weary of the romance of journalism, if, indeed, for him it would ever have lost its charm. The laws and life of the journalistic world were a source of pleasure to him; that whatever happened the paper must appear, that its policy must be correct, its word above suspicion, its authority unquestioned, these thoughts were dear to him, and under their rule he faithfully served to the fullest of his powers."

Rous had read much and appreciated authors differing widely in style, while he had a good critical taste in literature and other forms of art. His own verses, most of which were published in the *St. Mary's Hospital Gazette*, were written in a Gilbertian style and were full of humour, showing a quaintness of idea and a neatness of rhyme and rhythm which were often of a remarkable excellence. He contributed on one occasion some verses to *Punch*, and was gratified to receive a request for more. In his prose he had a sound clear style, entirely free from all affectation, and so well under his control that he could turn with readiness from grave to gay. Our pages, during the past two years in particular, contain many examples of his wide range and of his literary charm and dexterity, while a prize story and an extravaganza which he recently wrote bear witness to his versatility. The loss of such a man from the inner circle of a newspaper is, we need hardly say, a serious one, but Rous has left behind him at THE LANCET a sense of deep personal deprivation due to other than his great literary qualities. His connexion with us was a success from the beginning. Within a few weeks of his joining our staff we confided an important commission abroad to him, and from that day onwards he steadily rose in the affection and esteem of all of us. As we were made aware in the frankest way of his delicacy we did our utmost to prevent him from overworking himself, but it was the very essence of him to labour at full speed and maximum pressure combined, and such steps as we were able to take to lessen the strain upon him were always defeated by his enthusiastic engagement in strenuous interests without. He revelled in work, literary work, our work, and other work, and no remonstrance, while time remained for useful counsel, was ever of the least effect. The imprint which he has made upon his colleagues by his knowledge, energy, capacity, and, above all, highmindedness will never be obliterated from our memories.

Throughout his medical career his health was far from strong. He was subject to attacks of neurasthenia which on three or four occasions necessitated his resting from work for a time. With increasing responsibilities his uncertain health became a matter of great anxiety to him, although with truest bravery and his innate optimism he succeeded in throwing off gloomy anticipations. During his last illness, however, symptoms of greater severity than he had ever suffered from before made their appearance, and led to his death at Westgate-on-Sea, where he had gone to seek his lost health. On July 15th he was laid to rest at Birchington.

WILLIAM JAMES TIVY, F.R.C.P., F.R.C.S. EDIN.

Mr. W. J. Tivy died at his residence, 5, Victoria-square, Clifton, Bristol, on July 12th, in his sixtieth year. The deceased was the son of the late Mr. H. Tivy, of Cork, where he was born. He was educated at Queen's College, Cork, and became a scholar of that college. He also studied at Dublin, Edinburgh, and London. Mr. Tivy took the L.R.C.P., L.R.C.S., L.M. of Edinburgh in 1873, and in 1882 was admitted M.R.C.P. of Edinburgh. He served for a time in the navy, and obtained the F.R.C.S. of Edinburgh in 1879, and in 1884 the F.R.C.P. of Edinburgh. He was the author of a work on "The Pathology and Treatment of Lateral Curvature of the Spine," and contributed several articles to the medical journals. He was for many years an active member of the Bristol Royal Naval Volunteers, to which he acted as surgeon, and was extremely popular with the members. He took great interest in ambulance work and delivered several lectures to the Clifton division of the St. John Ambulance. He leaves a widow and four children, for whom much sympathy is felt.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Wm. H. Seaman, professor of chemistry and toxicology in Howard University, Washington.—Dr. Bamberger, formerly deputy for the Seine.—Dr. Henri Toupet, physician to the Paris hospitals.

IMPERIAL CANCER RESEARCH FUND.

THE annual meeting of the General Committee of the Imperial Cancer Research Fund was held on Wednesday, July 20th, at the Royal College of Surgeons of England, Lincoln's Inn-fields, when the Right Hon. A. J. BALFOUR, Vice-President of the Fund, occupied the chair.

Amongst those present were: Sir William Church, Bart., Sir R. Douglas Powell, Bart., Sir Henry Morris, Bart., Lord Cromer, Sir Henry Howse, Sir Charles Morrison Bell, Bart., Mr. A. Pearce Gould, Professor G. Sims Woodhead, Dr. Arthur Newsholme, Mr. H. T. Butlin, President of the Royal College of Surgeons of England, Mr. J. A. Mullens, Mr. Edmund Owen, Sir Francis Lovell, Dr. F. W. Andrewes, Dr. T. H. C. Stevenson, Mr. Gerard Fiennes, Mr. S. Leeke, Mrs. Yates, Mr. G. Maudsley Williams, Mr. S. G. Shattock, Miss Grimes, Dr. J. A. Murray, Dr. M. Haaland, Dr. Woglom, Professor Higuchi, Dr. H. Takaki, Dr. Snapper, Dr. Rosenthal, Mr. S. F. Cowell, Dr. E. F. Bashford (General Superintendent), and Mr. F. G. Hallett (Secretary).

Sir WILLIAM CHURCH moved the adoption in a short speech of the annual report, which follows in full, his speech being a very able abstract of the salient points:—

EIGHTH ANNUAL REPORT.

Report of Executive Committee.

On July 9th, 1909, H.R.H. the Prince of Wales presided at the eighth meeting of the General Committee of the Imperial Cancer Research Fund at Marlborough House, when the annual report presented by Sir William Church, Bart., K.C.B., chairman of the Executive Committee, was unanimously adopted. Professor G. Sims Woodhead was re-elected a representative of the General Committee on the Executive Committee, and a resolution was adopted vesting in the Royal Colleges of Physicians and of Surgeons the appointment of two representatives on the Executive Committee in lieu of those formerly appointed by the joint Laboratories' Committee of the Royal Colleges, a body which has ceased to exist. In reply to a resolution, moved by Sir John Tweedy, seconded by Sir John McFadyean, and unanimously adopted, expressing the thanks of the General Committee to H.R.H. the Prince of Wales for presiding, the President expressed his satisfaction at the progress made during the year and thanked the chairman and members of the various committees, the general superintendent, his colleagues, and the officers of the Fund for their services. Shortly after the meeting the general superintendent, Dr. Bashford, visited some of the laboratories on the Continent and discussed with many of the prominent scientific investigators various problems involved in cancer research. At the Sixteenth International Congress of Medicine at Budapest Dr. Bashford, as the representative of British Medicine, delivered an address, and later opened the discussion on cancer at the Ninth International Veterinary Congress at the Hague. During the year we have had to deplore the loss by death of several valued supporters, amongst whom may be mentioned Lady Glen-Coats, who was one of the first to contribute to the Fund, and Mr. Robert C. Ponsonby, both members of the General Committee. From the Executive Committee we have lost through death the valued services of Mr. H. H. Clutton. With great regret the committee accepted the resignation of Dr. Pye-Smith owing to continued ill-health, whilst with the termination of his period of office as President of the Royal College of Physicians Sir Richard Douglas Powell ceased to be a member of the Executive Committee. To these gentlemen the committee are greatly indebted for their constant and valuable services. Sir Richard Douglas Powell as trustee of the Fund still gives in another direction his active support.

The irreparable loss sustained by the whole Empire in the death of His late Majesty King Edward the Seventh deprived the Imperial Cancer Research Fund of its gracious Patron, and it is only fitting that the Executive Committee should place on record their humble appreciation of the sympathy shown by His late Majesty in the difficult problem with which the Fund has to deal. It was at the International Congress on Tuberculosis in July, 1901, that His late Majesty said: "There is still one other terrible disease which has up till now baffled the scientific and medical men of the world, and that is cancer. God grant that before long you may be able to find a cure for it or check it in its course; and I think that to him who makes the discovery a statue should be erected in all the capitals of the world." These words have been quoted throughout the world and to them may surely be attributed much of the encouragement given to the movement for laboratory investigation. It is with genuine satisfaction and gratitude that the committee have learnt that His Majesty the King, our former President, has been graciously pleased to become Patron of the Fund.

Mr. Henry T. Butlin, as President of the Royal College of Surgeons, became in July last an *ex officio* member of the committee. Sir Henry Morris, Bart., was re-elected a member of the committee on ceasing to be an *ex officio* member on his retirement from the Presidency of the College. Dr. Arthur Newsholme, chief medical officer of the Local Government Board, was appointed by the Royal College of Physicians in succession to Dr. Pye-Smith, and Mr. Pearce Gould was elected to represent the Royal College of Surgeons in the vacancy caused by the death of Mr. Clutton. Dr. T. H. Craig Stevenson, superintendent of medical statistics in the General Register Office, has accepted the invitation extended to him to join the Statistical Subcommittee. The committee are much indebted to Sir Richard Havelock Charles, K.C.V.O., for a comprehensive series of photographs illustrating the occurrence of cancer in various native races of India and its North-West Frontier. A request by Professor Courmont and Dr. Contamin of Lyons to be allowed to translate articles from the Third Scientific Report of the Fund into French has been granted, together with permission to reproduce many of the illustrations of these articles. The very important question of the provision of future laboratory accommodation has engaged the attention of the committee. There is now, it is satisfactory to report, considerable hope that the Royal Colleges may be able to provide adequate and suitable laboratories in their new Examination Hall for the use of the Fund, and the committee feel sure that the great advantage to the Fund of continuing to conduct the investigations in premises under the immediate control of the Royal Colleges will be thoroughly appreciated by all who are interested in the work. Whilst it is not to be expected that this new accommodation will be provided free of all expense, it will be gratefully recognised that this generous action of the Royal Colleges, so thoroughly in accord with their general policy of advancement of scientific research, will involve the Fund in a comparatively small expenditure. The cost of the equipment of the new laboratories as well as the expense of moving will, however, be considerable, and will have to be provided for during the next two years. The details of the arrangement have been referred to the consideration of the Pathological Subcommittee.

It is with unfeigned regret that the committee have learned that they are about to lose the services of a member of the staff who has very materially assisted Dr. Bashford in maintaining the standard of proficiency and the reputation for genuine scientific progress generally accorded to the laboratory researches. Dr. Magnus Haaland has been appointed to the important post of Director of the Pathological Institute at Bergen and will leave us at the end of the year, and the committee have every hope that his future career will enhance the scientific reputation he has already attained. The committee also regret that two voluntary workers under Dr. Bashford have terminated their connexion with the laboratories, but it is with much satisfaction that the committee have heard that they have received the recognition of their work by being invited to fulfil important appointments; Dr. Medigreceanu was offered an appointment in Bucarest, but has preferred to accept another appointment in New York; whilst Dr. Da Fano has been appointed first assistant in the Pathological Institute at Groningen, Holland. Mr. A. G. Wells has been appointed assistant in the laboratories in place of Mr. Bowen, resigned. Professor Shigeji Higuchi of Tokio, Dr. Snapper of Amsterdam, and Dr. Rosenthal of Budapest have been given places and have already commenced their investigations. The Director has also been able to find a place for Dr. Woglom, of the Crocker Cancer Research Fund of Columbia University, who has resumed his work in our laboratories after an absence of five months. These gentlemen devote the whole of their time to their researches, as was the case with Dr. Da Fano and Dr. Medigreceanu, and such assistants are of infinitely greater value to the investigations pursued in the laboratories than those who are able to devote only a few hours daily to such work. Dr. Sluys of Brussels and Mr. Takaki of Tokio are waiting for vacancies, but it has been impossible to admit all applicants who desire to study the methods employed in our laboratories. On this account it is to be regretted that an applicant arrives in this country without having previously made arrangements with the Director. The Executive Committee are anxious to encourage this practical form of international laboratory intercourse, for it is in this way that the Imperial Cancer Research Fund can usefully influence the investigations both at home and abroad. Mr. Shattock and Mr. Handley, both of whom have received grants from the Fund in aid of their investigations, have published papers embodying their results. The Lord President of the Privy Council having requested the Executive Committee to recommend a fit and proper person to represent His Majesty's Government at the International Conference on Cancer Research to be held in Paris in October next, Dr. Bashford was unanimously recommended for this office, and the committee have learnt with satisfaction that His Majesty's Government have accepted the nomination.

During the year tumours and other material for investigation have been distributed to the following: Dr. Cramer, Physiological Department, University of Edinburgh; Dr. Leitch, Cancer Research Department, Royal Infirmary, Dundee; Professor Benjamin Moore, Bio-Chemical Department, University of Liverpool; Professor Grünbaum, University of Leeds; Dr. Twort, Brown Institution, London; Mr. Shattock and Dr. Dudgeon, St. Thomas's Hospital; Dr. Beckton, Middlesex Hospital; Mr. G. P. Mills, Birmingham University; Professor Dean, Pathological Department, University of Aberdeen; Dr. Powell White, University of Manchester; Professor Abderhalden, Berlin; Professor Landsteiner, Vienna; Professors Bergell and Sticker, Berlin; Professor Tschitchkine, Moscow; and Dr. Contamin of Lyons. Numerous papers and communications have been issued from our laboratories during the year, and in addition addresses, lectures, and demonstrations have been given by invitation at the University of Utrecht, before the Dutch Cancer Committee, at the London Hospital, the Polyclinic, and elsewhere.

FREDERIC G. HALLETT, Secretary.

Report of the General Superintendent.

The more general aspects of the study of cancer have continued to receive attention, although the period when such investigations chiefly occupied our energies ended with the publication of the Second Scientific Report. Since then specialised studies have been undertaken and continued during the past year. In addition, investigations carried out elsewhere have required repetition, followed up by further experimentation; consequently a very large number of distinct problems have been attacked. Many of these inquiries must have been postponed had it not been for the number of voluntary assistants in the laboratory. It will be most convenient to refer to these specialised investigations *seriatim*. Without departing from the precise and guarded language suited to the description of such complicated investigations it is necessarily difficult to bring home to the layman their bearings upon the direct questions he wants answered. Substantial progress is, however, to be recorded.

Statistics.—An account of the more salient features of statistics tabulated from the data of 13,000 cases of cancer collected from hospitals has been published; attention has been directed to the bearing of the statistics upon the diagnosis of the disease, upon the interpretation of mortality statistics and upon the alleged increase of cancer, as well as upon the anatomical distribution of the disease and its association with irritation. With the continued support of the Foreign, India, and Colonial Offices further information has been obtained on the occurrence of cancer in native races in outlying parts of the Empire. In this connexion the importance of the association of chronic irritants with cancer has continued to claim chief attention.

Importance of cancer of tongue.—Cancer of the tongue in the human subject is important because of the minute size of the lesions which can

be recognised. A plaque on the surface of the tongue, not more than a twentieth of an inch in its longest axis, may exhibit all the features of malignant new growths; with plaques not more than a fourth of an inch in longest axis extensive infiltration of the walls of the veins and muscles of the tongue also may be present. The histological examination of these early lesions, and also of others that had been neglected or "under observation" till they had become of very much greater size, has convinced us that any local lesion of the tongue in an elderly person, the cancerous nature of which cannot be definitely excluded, should be removed and submitted to microscopical examination. This examination should be made by sectioning the entire growth and examining all the sections in order. A single section is quite valueless for diagnosis when picked out haphazard unless it gives a positive result.

Serum diagnosis.—The methods suggested during the past year by various workers for the serum diagnosis of cancer have not yielded positive results in our hands and reliance must continue to be placed on the examination of the anatomical lesion.

Cancer in vertebrates.—Much additional information has been obtained on the occurrence of cancer in lower vertebrates. It is gratifying to record that the systematic investigation of cancer in the animal kingdom has found numerous adherents both at home and abroad. Particular attention has been devoted to the incidence of the disease in cattle and in mice. While in mice the phenomena are presented in miniature even in their most advanced stages, in cattle they are demonstrated on a magnified scale as compared with man although the universal minuteness of the early stages is independent of the size of the animal. In the course of the past six months 90 cases of malignant new growths in cattle were obtained from a single abattoir. The histological types comprise the majority of the forms met with in man. The frequency of primary carcinoma of the liver associated with cirrhosis, and of primary malignant growths of the suprarenal is of interest. The study of these growths has thrown light on the circumscribed origin of malignant new growths, their occasional multiplicity, and on the phenomena of dissemination.

Spontaneous tumours in mice.—During the year 166 mice bearing spontaneous tumours have been examined, 139 of which had malignant new growths. It has been demonstrated that practically all mammary carcinomata of the mouse can be transplanted; therefore, of the 139 malignant tumours only 22 were transplanted, and these were selected because microscopical examination had shown them to be of exceptional nature. The tumours comprise carcinomata of the preputial and sebaceous glands, eight cancroids, a hypernephroma, a spindle-cell sarcoma, and five lymphomata, of which two were accompanied by leucæmia. Two squamous-celled carcinomata involved the jaw, invading it extensively. Other tumours of interest have been found in the uterus, ovary, liver, lungs, and heart.

Breeding experiments bearing on heredity and contagion.—The advantages of using short-lived animals for studying the possible influence of heredity was pointed out in 1903. The breeding experiments, which have been in progress for five years, have yielded a material of nearly 2000 animals of known age and ancestry. Of these, 700 females attained the age of six months or over. In them 75 cases of cancer of the mamma have appeared spontaneously. This material is very complete as regards diagnosis of the disease, age, pedigree, and other important data, and it is now sufficiently large to permit of the most exact analysis of the influence of ancestral constitution on the liability of mice to spontaneous cancer of the breast. Analysed so as to bring out the liability to cancer according as the young were born before or after it appeared in the mother, the figures show a higher incidence in those born before the mother developed the disease. Since the conditions necessary for contagion were present the opposite result would have been obtained had any analogy existed between cancer and the recognised infective diseases.

Number of tumours propagated.—A diminution has been effected in the number of mammary growths propagated in the laboratory. Only 45 mammary carcinomata are being propagated as against 60 last year. Of others remaining under propagation, six exhibit horny changes in varying degrees, two are adeno-carcinomata of sebaceous glands; in addition there is an adenoma of the preputial glands, an osteo-chondro-sarcoma, a spindle-celled sarcoma, and a round-celled sarcoma. Several strains of spindle- and polymorphous-celled sarcoma that have arisen under experimental conditions are being propagated. A carcinoma and sarcoma of the rat are being propagated. Tumours of the guinea-pig, dog, and frog are also under observation. The general results of the study of the large number of tumours which have been under observation may be summarised as follows. Three years and four months represents the maximum length of life observed for mice kept in our laboratory. One tumour-strain has been growing for nine years and has now passed through 166 successive batches of mice, and 16 tumour-strains are still growing freely after three years. It is thus demonstrated that the duration of the growth of cancer has no limitations set to it comparable to the length of life of the animal in which it arose.

Deviations in structure and growth.—The majority of the propagable tumours exhibit marked deviations from the normal histological structure of the tissues from which they have arisen. Nevertheless, the purely glandular structure of several adenomata affords evidence that the capability for propagation is not necessarily dependent upon, nor accompanied by, marked changes of histological structure. Besides adenomata of the mamma this capability for propagation is especially exhibited by those of the sebaceous and preputial glands which retain their characteristic secretory functions. It has thus been demonstrated that tumours which under the microscope are with difficulty distinguishable from the normal mother-tissue from which they arose, are also capable of unlimited propagation. In this respect the extreme contrast between the structure of the most undifferentiated malignant new growths and normal tissue has been bridged over, and it is demonstrated that loss of differentiation is not necessarily associated with malignant growth. The contrast between the unlimited amount of growth presented by the most rapidly proliferating tumours, and the restricted growth of normal tissues when transplanted, has also been bridged over by a series of tumours exhibiting, on transplantation, all gradations of growth-energy down to tumours whose powers of growth are little more than those of normal tissues. The conception of what constitutes a malignant new growth is thereby greatly simplified, and together with what will be said below regarding the relative constancy and variability of tumour cells, marks a most important advance in knowledge.

Relation of tumour to organism.—The relations of a tumour to the organism primarily attacked and the nature of cancer have been further elucidated by the following experiments. The transplantation of a spontaneous tumour into the same animal either subcutaneously or intraperitoneally is almost invariably successful, although transplantation into other animals of the same species may fail in extreme cases in as many as 500 attempts. This difference obtains whether the other animals are normal (young or old), or are exactly comparable by being naturally cancerous and of the same stock, and same age. Thus of 55 re-inoculations of animals with their own tumours 54 were positive, whereas of 77 inoculations of spontaneous tumours in other spontaneously affected mice only 5 were positive. If transplantation of a spontaneous tumour be practised under the most favourable conditions, as described in published papers, the percentage of success rarely reaches 30 per cent. and on the average is only 12 per cent. From such observations we must conclude that animals naturally the subject of cancer do not suffer from it because they present a soil uniformly favourable to the disease. On the contrary, the circumstances associated with the appearance and the growth of cancer are in each case peculiar to the individual attacked, and need not be similar to that obtaining in any other individual. Further, these experiments would go a long way to prove that the cancer cell, although highly dangerous to the individual in which it arises, is relatively innocuous to other individuals. This conclusion is not vitiated by the case with which other tumours after artificial adaptation to propagation, can be made to grow in all mice inoculated. In their case also it has been demonstrated that the risk of natural transference is non-existent.

Influence of age.—Both for spontaneous tumours and for propagable tumours it has been shown that young animals afford a more suitable soil for transplantation than do old animals, although the latter are much the more prone to the natural development of cancer. The fact that transplantation is more readily successful in young than in old animals shows that although senescence is intimately bound up with the origin of cancer, it is inimical to its continued growth. In each case of spontaneous cancer this inimical influence is neutralised by the perfect adaptation of the cells to their parent and host. The view which has been widely accepted that cancer arises in old animals in parts of the body which retain the normal avidity for food, while that of the rest of the body is diminishing, has been disproved by the results of elaborate cross inoculations of spontaneous tumours into the animals in which they arose and into other cancerous and normal animals, as well as by transplanting propagable tumours in cancerous and normal animals.

Constancy and variability of tumour cells.—Tumours growing in a living animal can be protected from all outside influences, and, when propagated in large numbers of young mice of the same strain, the conditions are as constant as it is possible to provide. Under these circumstances it would not be surprising, on the one hand, if tumours showed little or no departure from the features they exhibited at the outset of propagation; on the other hand, it would not have been surprising if tumours widely different in character had tended all to approximate to a common type, in response to the unvarying nature of their environment. What has actually come out is both interesting and instructive, in that it shows that the tumour cells possess a relative constancy in their general biological properties, but at the same time exhibit an inherent tendency to vary in spite of the constancy of the environment, and therefore apparently for reasons independent of it. Each tumour preserves its individual features, and if there be variations then the variations likewise are individual. The constancy may be very perfect, so that strains of the same tumour propagated separately for three or four years remain indistinguishable in all their properties. On the other hand, the variations arising may be so great and of such constancy, that strains propagated separately from the same mother-material would not be suspected to have any relation to one another if submitted to one ignorant of their life-history.

In former years we have pointed out that an increase in the rate of growth, or in the percentage of successful inoculations does not necessarily imply a fundamental biological alteration finding expression in an accelerated rate of proliferation of the tumour cells, but may be explained by the selection of particular cells adapted to the conditions of growth, and, consequently, the survival and proliferation of a larger number of such cells. That is to say, these two phenomena may be explained by an increase in the dose of the cells able to grow. The evidence for the acquirement of new properties by tumour cells is very much stronger when one observes the occurrence of morphological alterations which become of relative constancy, such as the disappearance—or latency—of their typical characteristics in the case of squamous-celled carcinoma, the disappearance of acinous structure in the case of glandular carcinoma, the derivation from cubical epithelium of epithelial cells which, if their previous history had not been known, could not have been distinguished from those of a spindle-celled sarcoma. In other cases, the change is made manifest by the alterations taking place in the supporting connective tissue and blood-vessels, so that tumours which at one time exhibited dilated blood-vessels lose this character. Biological alterations occur without evident morphological expression—e.g., some tumours at the commencement of propagation, after an initial exuberant growth, disappear in a large proportion of cases; whereas, after the propagation is prolonged a large percentage of the implantations grow progressively. The opposite phenomenon may also be observed, and tumour strains which grow progressively at the outset of propagation may later be found very liable to disappearance. A tumour which grows well only by the implantation of intact grafts—i.e., if the tissue structure is preserved—can be adapted to transplantation as a cell emulsion and again brought back to its original condition. Of the 29 tumours of the mamma that have been propagated in the laboratory for over two years, as many as 16 have shown departures from the features they exhibited at the outset, these departures affecting the degree and nature of the histological differentiation, the percentage of successful inoculations, the rate of growth of the resulting tumours, the relative proportions of progressively growing tumours and of tumours which undergo spontaneous absorption after transitory growth, the susceptibility of the tumour to method of transplantation, to dose, to race, to age, and to the influence of induced immunity. Thirteen tumours have shown a relative constancy of their structural and biological characters. Of the 16 variable tumours, nine have varied from the primary condition in both respects. Two have shown biological variations without histological change and five have altered in microscopical characters without noticeable modification of their biological behaviour. On the whole, therefore, histological character is less constant than biological behaviour.

The relative constancy, but still more the variability, which the

tumour cells exhibit, during propagation, throws indirect light of the most suggestive kind upon the nature and the manner of the development of cancer. The variability in a constant environment, during propagation, allows one to infer that corresponding variations may take place, while the cells are under the influence of the particular environment provided by the animal in which the tumour developed spontaneously. The environment of the cell will depend on the individuality of the animal, and, with the progress of life, distinctions between one animal and another may become more and more marked. This inference accords with what has been said above on the ease with which autotransplantation is effected and the difficulty with which transplantation can be effected to another individual, and therefore also with the fact that all cancerous mice do not exhibit an equally suitable soil for tumours in general. These spontaneous variations of the parenchyma cells of tumours during propagation suggest that we have here a repetition, in a minor degree, of the cellular processes responsible for the primary transformation of non-cancerous into cancerous tissue. Just as cellular changes occurring during propagation may transform within a brief space of time an acinous growth into a solid one, or a slow-growing tumour into one rapidly proliferating, so in the tissues prior to the development of a malignant new growth the responsive proliferation of cells may pass into the progressive, independent proliferation of cancer.

Experimental sarcoma.—In this connexion it may also be well to refer again to the production of sarcoma under experimental conditions from what have been the non-malignant connective tissues of carcinoma. Not the least significant aspect of the origin of sarcoma by the transformation of the stroma of transplantable carcinomata is the rarity of its occurrence. Two only of our strains have exhibited it, and the conclusion seems warranted that in these cases the parenchyma is possessed of peculiar properties. In one of our strains the change occurred only in a small number of animals, and the whole process, from the first indications of sarcomatous changes in the stroma to the substitution of the carcinomatous elements by pure sarcoma, took place slowly and was only completed after several successive transplantations. In the other strain the transformation was much more frequent, took place more rapidly, and the disappearance of the carcinomatous element may be complete in one transference. In spite of these differences the parallelism between the histological pictures in the two strains is extremely close and leaves no doubt of the essential similarity of the processes involved. The stimulus exerted by the carcinoma cells on the stroma must be different in these two strains from that exemplified by the other transplantable tumours, otherwise every transplantable carcinoma should end in sarcoma, as it has indeed been asserted they might do. A fairly long duration of the stimulus exerted by the carcinoma cells without cessation of their proliferation seems to be necessary, and the first steps of the process are always localised in an extremely minute area of what are often large tumours. The parallel to the circumscribed origin of squamous epitheliomata arising in areas subjected to chronic irritation in man (chimney-sweeps' cancer, paraffin cancer, Kangri-cancer) does not require to be insisted on further, since it has been emphasised in previous years.

Metabolism and bio-chemistry.—Experiments bearing on the metabolism and bio-chemistry of cancer have been conducted on a larger scale than formerly. In some of the investigations the Imperial Cancer Research Fund has had the collaboration of independent workers in the Physiological Department of the University of Edinburgh, the Biochemical Department University of Liverpool, the Pathological Department Guy's Hospital, the Pathological Department St. Thomas's Hospital, and the Physiological Institute, Royal Veterinary College, Berlin. The absence of suitable accommodation for such investigations has made this distribution of material necessary, and, owing to the special knowledge possessed by the investigators in these different centres, it has also been advantageous. An exhaustive investigation has been made into the relative sizes of the organs of rats and mice bearing transplanted and spontaneous tumours. The most important result has been the discovery of an enlargement of the liver in animals bearing carcinomata and sarcomata, whether transplanted or naturally arising. Up to a certain point the hypertrophy is proportional to the weight of the tumour. There can be no doubt that this hypertrophy of the liver is associated with the metabolism of the tumour. It is being further investigated as an important clue to the bio-chemical relations of a tumour to the organism bearing it. Careful investigations show that it is not to be explained by animals bearing tumours taking up more nourishment than do normal animals. It has been found that less nitrogen is required to build up a given weight of tumour than is required to build up an equal weight of normal tissue of the host, cancerous tissue containing not more than three-fourths as much nitrogen as normal tissues weight for weight. In animals with transplanted tumours, at a period before excessive growth has led to exhaustion, nitrogen is stored up in proportion to the increase in size of the tumour. The nitrogen for the tumour is obtained by a "sparing action" on the protein metabolism and not at the expense of the host tissues. This explains why with the increase of the tumour the animals do not eat more. Control experiments on pregnant animals have shown a parallel condition to exist in them. It will be evident that the extension of the bio-chemical side of the investigation of cancer will become more and more a matter of urgency and promise.

Relation of spirochætes to cancer.—It is worth recording that 34 of our tumour-strains have been examined in the Bacteriological Laboratory, London Hospital, for the presence of spirochætes, with negative results. Spirochætes have been the most recent alleged causative agents of cancer. This negative result, together with the fact that spirochætes have been found in mice in the absence of tumours, shows that their presence in a tumour is of no etiological significance.

Immunisation.—A large proportion of the work has been devoted to the reactions conferring resistance to the transplantation of cancer, to those responsible for the disappearance of transplanted tumours, and to the rarer phenomenon of the natural cure of spontaneous malignant new growths. The most varied means of disintegration or modification of cells are being employed to attempt to rob tumour-tissue or normal tissue of its powers of growth while retaining its powers of inducing resistance, but as yet without success. Resistance can still be induced only by the employment of living tissue.

The possession of a large series of tumour-strains showing all gradations in the percentages of tumours disappearing after transitory growth has made it possible to study the reasons for their disappearance under favourable circumstances, because the series comprises some tumour-strains with the maximum speed of growth, while others present all gradations to the minimum. Advantage has also been taken of those alternations in the biological properties of tumour cells to which attention has so frequently been directed in previous years. It is now possible, under given experimental conditions, to prevent a secondary transplantation—i.e., artificial metastasis—taking place for certain tumour-strains. This result has been obtained by inserting between the primary and secondary transplantations an inoculation of a very rapidly growing tumour showing only transitory growth, as the following sample experiment shows. Of 12 mice, already bearing progressively growing tumours and treated in the manner described, the secondary inoculation was successful in three only, and then the tumours were very much smaller than in the control consisting of 13 mice, of which 10 developed new progressively growing tumours on secondary inoculation. A similar result can be obtained by the implantation of tumours growing much more slowly and liable to spontaneous absorption, as well as by an inoculation of normal mouse tissue. By similar methods the growth of the primary transplanted tumour may be greatly hindered, can be brought to a standstill, and the animal cured, in circumstances under which the disease would certainly have progressed, and where the possibility of the occurrence of spontaneous cure can almost certainly be excluded. Thus the control of transplanted cancer has been brought within the region of probability. These achievements must not be confounded with successful vaccination against spontaneous cancer arising, or against infectious disease. Animals perfectly protected against the repeated inoculation of cancer may develop tumours of their own—an observation often confirmed. Still more emphatically do we warn against applying to the human subject the methods which, after long perseverance, have enabled us to arrest the growth, and even to cure animals, of transplanted tumours that were well established, and also to render animals resistant to a secondary inoculation—i.e., to dissemination and metastasis formation.

The immunity reactions to transplanted cancer are throughout clearer and more easily studied than are those of spontaneous cancer. The problems presented by spontaneous tumours are more delicate and elusive. The methods effectual in normal animals against primary inoculation with transplantable tumour, which, as mentioned above, also arrest the growth of growing transplanted tumours and prevent successful re-inoculation under suitable circumstances, have been without action on the continued growth of the 25 spontaneous tumours on which they have been tested, have failed to prevent recurrence or dissemination, and have not yet prevented a successful re-inoculation of the spontaneously affected animal with its own tumour. The investigations must go on until a higher degree of resistance can be obtained in this way, or it may be that an entirely different method must be sought. The expectation of ultimate success seems a fair inference from the results obtained with transplanted tumours which reproduce all the phenomena of growth and dissemination of spontaneous tumours, and from the rare but undoubted cases in which temporary arrest of growth or total disappearance have occurred in spontaneous tumours.

The prospect is made the more hopeful by the discovery of a method whereby an animal can be immunised by means of one of its own tissues against a primary inoculation of a tumour transplanted from another animal. This, again, is a very different matter from immunising an animal against its own tumour. Nevertheless, it illustrates how much that was previously unsuspected is being revealed as step by step advances are made into yet unexplored regions. Inquiries into the effects which the several tissues of the body may have, either singly or in combination, in inducing protection are being made.

Chronic irritation and cancer.—A practical result arises out of the association of various forms of irritation with the development of cancer in sites where more obscure influences can be excluded, especially from what has been ascertained on the incidence of cancer in native races practising peculiar customs, and on the incidence of cancer in some animals. Experiment has emphasised this relation and has thrown light upon the mechanism which makes the irritation effective, leading to similar consequences although the irritants themselves have nothing in common. Recent legislation is thereby justified in the interest of workers employed under circumstances exposing particular parts of the body to chronic irritation of peculiar kinds. In 1903-04 the feasibility of obtaining more accurate information of the incidence of cancer in different occupations was before the Statistical Subcommittee. The progress made since renders such an investigation still more urgent to-day. It must not be supposed, however, that cancer has been proved to be always the result of irritation. The *mediate* influence of irritation has only been defined more closely than ever before.

Preparations are being made for the issue of a Fourth Scientific Report. The two annual surveys of the work conducted since the Third was published will indicate that already sufficient new material has accumulated; meanwhile progress has been recorded in a large number of published papers.

My colleagues join me in congratulating Dr. Haaland on the important position he has accepted in Norway. While regretting the loss of so able and willing a collaborator, we trust that he may have, in his native country, those opportunities for the pursuit of science of which he is so eminently deserving, and that he may thereby be enabled to enhance the reputation Norway enjoys for independence and originality of thought.

ERNEST F. BASHFORD, M.D.,
General Superintendent of Research and Director of the Laboratories.

Report of the Honorary Treasurer for the Year Ending June 30th, 1910.

The actual expenditure on the research work and the incidental expenses connected therewith during the year 1909-1910 amounted to £5782 13*s.* 7*d.* The actual income from invested capital during the same period was £4159 7*s.* 8*d.* The contributions received during the year towards the general fund reached a total of £3150 16*s.* 5*d.* After deducting from these contributions £1623 5*s.* 11*d.* to meet the deficiency of income as compared with expenditure for the year, and £703 11*s.* 10*d.* for repayment of the overdraft of the preceding year, there remained the unexpended balance of £823 18*s.* 8*d.* to be carried to the general fund. In addition to these contributions a further sum of £6000 has been contributed towards the endowment fund. The invested capital has therefore been increased by this amount during the year and the total now stands at £132,222 19*s.* 3*d.* On comparing the receipts in interest and dividends for the year ending June, 1910, with those for

the year ending June, 1909, it will be found that though the amounts of stocks were precisely the same in the two years, there was a diminution of £94 9s. 9d. on the dividends of the general investments, and of £94 9s. 7d. on those of the Bischoffsheim Fund. This is explained by the fact that the income-tax rebatement on some of the stocks has not yet been received owing to the political situation which prevailed during the financial year just terminated.

On comparing the items of expenditure of the last year with those of the year immediately preceding the following differences will be noticed: (1) a diminution of £330 5s. in the fees paid to committees and hospital officials, due chiefly to the discontinuance for the moment of the returns of cancer cases occurring in the hospital; (2) a further reduction in the farm expenses amounting to £137 0s. 3d.; (3) a reduction of £831 10s. 10d. on the scientific report account, due to a considerable portion of the cost of the large report of 1908 falling for payment within the first half of the year 1909, and to the fact that there was not during last year any large scientific report issued; (4) the office expenses have been somewhat less; (5) an increase of £163 4s. 2d. in salaries and wages, due partly to the honorarium granted to one of the scientific assistants; (6) an increase of £51 8s. 4d. in travelling expenses of the director to attend congresses at Budapest and the Hague, and to visit some of the more important laboratories on the continent; (7) an increase of £262 2s. in the requirements in the laboratory, largely caused by the purchase of expensive apparatus necessary for the research investigations which were going on; and (8) £87 14s. 6d. more has been spent on advertisements this year than the year ending June, 1909.

It is gratifying to report the continuing aid of some of the earliest friends of the Fund. The munificent gift to the endowment fund of £5000 by "A Friend" is from one of the first and most liberal contributors and one of the most earnest and hopeful of the well-wishers of the research into the difficult problems connected with cancer and morbid growths in general. The donation of £1000 (being the fourth of a similar amount) from the Duke of Bedford is a further evidence of the interest in, and the enthusiastic encouragement to, the cause which His Grace has shown ever since the initiation of the Fund. In 1908, during the absence from England of, then, H.R.H. the President and now H.M. the Patron of the Fund, King George V., the Duke of Bedford rendered a great personal service by presiding over the Seventh Annual Meeting of the General Committee; and after the annual meeting of last year his watchful consideration of our untoward financial position led him to make this last generous gift for the express purpose of clearing off the overdraft of £703 and providing a balance in our current account. Our grateful thanks are also due to Mr. James Wilcocks for his handsome contribution of £1000 to the endowment fund. There is one other donor, though I may not mention her name, to whom the Imperial Cancer Research Fund is deeply indebted. I refer to "Anonyma," who, having previously contributed on several occasions to the Fund, has this year made the substantial gift of £100.

Knowing as I well do the amount of self-sacrifice and the many self-denials which such a donation from a lady of very moderate income means, I desire on behalf of the executive committee to thank her publicly through the channel of this report, and at the same time to assure her—a gentle and tender-hearted woman and a lover of animals as she is—of our appreciation of her repeated efforts to correct and counteract prejudices which on the ground of vivisection it has been attempted to arouse against the Fund. Such attempts she with righteous indignation has from time to time taken trouble to show have a tendency, if they have any influence at all, to throw difficulties in the way of scientific research and to frustrate the aims of humanity. A glance at the list of contributions will show that from several other persons the fund has this year derived assistance by their repeated donations, in some instances for the seventh, eighth, and ninth occasion. This loyal support and sympathy is most encouraging to the executive committee, the scientific committee, and the Director and his assistants, each and all of whom are stimulated to continuing and unrelaxing efforts to make progress in the search for knowledge and thus to justify the confidence placed in them. It is, however, still requisite for me as treasurer again to repeat that the annual expenditure greatly exceeds the income derived from investments, and to point out that this expenditure cannot be reduced, but, on the contrary, is quite sure to increase in the next few years. Next year a fourth scientific report which will be issued must make a very heavy demand upon the Fund, and the considerable expenses attaching to removal and to the equipment of laboratories in a new building will shortly have to be found. It is most essential, therefore, that there shall be no falling off in the coming years of the contributions to the working expenses of this Fund.

HENRY MORRIS, Honorary Treasurer.

Professor SIMS WOODHEAD, in seconding the adoption of the report, said that they might gather from it and from the abstract given by Sir William Church, that they had had done in the laboratories under Dr. Bashford and his staff an enormous amount of spade-work. In referring to spade-work he did not mean merely navvy work, but he thought they might congratulate Dr. Bashford and those who had been working with him on what he might call the intelligent sapping and mining of the cancer problem. There had been no great advances, perhaps, but as they saw from the report there had been a large number of very important questions tackled. Those who could read the report from the "inside" would say that even from the point of view of immediate value there had been a very great deal of valuable work done. But quite apart from that there had been a clearing of the ground, which he thought would enable those working in the laboratory to concentrate, and to concentrate much more effectively, upon the remaining problems which had to be solved; and in seconding the adoption of the report he felt that he could congratulate Dr. Bashford and those who had been working with him on working at a question the issues depending upon which were of very great magnitude. One knew that in a difficult question of this kind there might appear to be times when the interest flagged, but those of them who had been on the Executive Committee and had watched the workers had realised what an intense fascination there must be in this subject, partly because of the difficulty of the subject, partly because of the immense amount of work which had to be done, and partly because of the issues that depended upon it.

The resolution was carried unanimously.

On the recommendation of the Executive Committee, the Duke of Bedford, K.G., was unanimously appointed President of the Fund.

Mr. BALFOUR then said from the chair: The next resolution stands in my name, and I propose it with very great pleasure. It is—

That the thanks of this meeting be given to the Chairman and members of the executive committee, the subcommittee, the honorary treasurer, and others who have assisted in the work of the Fund during the past year.

It is now seven years since I had the great honour of presiding at the annual meeting of the Fund, and I am given to understand—I think by Sir William Church himself—that critics have been found who think that the work of the Fund should have shown greater and more direct results in the course of these early years of its existence. I confess that, looking back over the seven years which have elapsed since I last took this chair, it seems to me that a precisely opposite conclusion ought to be drawn from the various reports that we have had laid before us, and not least from the summary of the work of the Fund which Sir William Church has just given. I suppose there were persons who imagined that you had only to start a Fund with a large number of competent workers to be able to find some immediate method of dealing with the great scourge of cancer—a scourge the magnitude and severity of which, though not apparently increasing, is being more and more brought home to us by the improvements of statistics and the improvements of medical diagnosis. But surely those expectations of an immediate discovery of some external remedy, so to speak, some accurate and active remedy for this disease, did not take sufficient account of the only means by which we can really deal with these great therapeutical problems, which must be dealt with as part of a great biological whole. If anybody considers, for instance, what has been done in dealing with that enormous class of diseases which we now know to be due to microbic invasion they will see that it was not done by any method analogous, for instance, to the accidental discovery of quinine as a prophylactic against certain kinds of fever, but, on the contrary, all our discoveries are due to a broad scientific outlook which has produced unexpected conclusions and results in every kind of different field, apart even from human pathology. Whoever would have suspected, only within the lifetime of myself and others who are listening to me, that we should see some kind of common cause in such utterly different things as the production of alcohol, the production of pearls, and the production of whooping-cough; and yet I suppose our knowledge of how all those very different results have come about is really due to investigations into the actions of microscopic organisms in various fields acting in very different ways. The public ought to remember that all that has been done in tropical medicine, in vaccine therapy, all the triumphs which have been won, and the much greater triumphs which are going to be won, are based upon this broad investigation into great scientific issues. Well, I imagine one result of the investigations of the Fund is to show that we are now dealing with quite a different set of phenomena from those with which ordinary infectious diseases are concerned. I gather that the results of the scientific investigations of the Fund are to show that while these infectious diseases are due to external invasion, tumours are due to domestic rebellion, and they are entirely different, therefore, as I understand the results which have been arrived at by Dr. Bashford and his colleagues, in their cause, and must be looked at from an entirely different point of view. But, accepting that fact and admitting that the enormous progress of our knowledge with regard to bacteriology will give us but little direct assistance in dealing with the problem of tumours, surely it is true that already the investigations of the Fund have given birth to great and important generalisations, which may be the foundation of a somewhat hopeful outlook as to the future. I will only mention two which appeal to me very greatly. One is the

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I know Dr. Bashford is listening to me with nervous anxiety lest I should give too sanguine a view of the conclusions he has arrived at, and I wish to cut down my statements to the narrowest limits and put them in the most cautious way. But I do not think that even Dr. Bashford, with all his caution, will deny that the investigations made by the Fund into the manner in which chronic irritation unquestionably produces cancer may enable us materially to diminish as our knowledge increases the causes by which cancer is produced. If, then, we turn to the other, the more difficult, the more critical, and the more important problem of how malignant growths when they are present have to be dealt with, I think it would be a cruel kindness to suggest that we are even within sight of anything that can be called a new remedy for cancer. 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At all events, that is the way in which it seems to strike the lay mind, and I hope Dr. Bashford will not think that I have gone too far in indicating these hopes, which, whatever he may say to the contrary, I individually entertain, but whether I shall live to see them bear fruit I really cannot say. Now, surely, if I have not over-stated the case, here are two great lines of investigation by which we have attained, or are within sight of, conclusions of the utmost value and importance. And let no man think, let none of the lay observers and sympathisers with our work for one moment think, because that work is of great extent, because its foundation has to be laid on a broad basis of scientific experiment, and because the work of the Fund does not merely consist of taking up one after another particular suggestions which are thrown out, very often by quite competent people, in respect of special modes of dealing with cancer—let no man think that because that is not the main work of our Fund, the main work of our Fund is on that account other than the only possible method of working which is going to produce great and permanent results for the good of humanity. I apologise for having occupied so much of your time and for having spoken with such fulness on a question on which after all every single man I am addressing is far more competent to say something to me than I am to say something to them, but it is not without its value that an outsider and a layman should give quite candidly his impressions of the work which has been done, and is being done, by this Fund. It may appeal to people to whom the technical reports which we issue from time to time make little appeal, and it may serve to encourage them in giving us that assistance without which even the most admirable scientific work must be brought to a premature conclusion. I do not think I need add anything more. I have already read the resolution which I am moving, and it is only necessary for me now to ask Sir Henry Howse to second the motion which I have the honour to propose.

Sir HENRY HOWSE having seconded the motion, it was unanimously adopted.

Mr. BUTLIN moved that Sir R. Douglas Powell should be appointed a member of the General Committee, and that Sir Watson Cheyne should be re-elected a representative of the General Committee on the Executive Committee. These elections having been made, and the honorary treasurer of the Fund having been elected for the future an *ex-officio* member of the Executive Committee, Sir HENRY MORRIS, the present honorary treasurer, proposed a cordial vote of thanks to Mr. Balfour for presiding, in the course of which he referred to the great loss which the Fund had sustained through the death of the late King, and to the high philosophical attainments of Mr. Balfour. This was seconded by Dr. ARTHUR NEWSHOLME, and carried with acclamation, when the proceedings terminated.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held on June 30th and July 1st, 4th, 5th, and 6th, 88 candidates presented themselves, of whom 53 were approved (including one lady—Miss S. J. Scott Reid, Royal Free Hospital), and 35 were rejected. The following are the names of the successful candidates:—

Cedric Whitfield Armstrong, B.A. Oxon., Oxford University and London Hospital; Edwin Randolph Bailey, Guy's Hospital; Richard Albert Banbury, St. Thomas's Hospital; Burgess Barnett, St. Bartholomew's Hospital; Howard James Bates, Birmingham University; Jamasp Curshedji Bharucha, L.M.S. Bombay, Bombay University and London Hospital; Peshotan Dorabji Bhiwandiwalla, L.M.S. Bombay, Bombay University; Samuel Isaac Blairmann, Middlesex Hospital; William Herbert Blakemore, Manchester University; Ralph Cay Briscoe, St. George's Hospital and King's College; Maurice Hereward Cane, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Ennis Ratcliff Chambers, London Hospital; Richard Challoner Cobbe Clay, King's College and Westminster Hospital; Gerald Cock, Charing Cross Hospital; John Rhys Davies, University College, Cardiff; Richard William Davies, St. Mary's Hospital; James Douglas Driberg, London Hospital; Walter James Ignatius Dwyer, London Hospital; Richard Shirley Fawssett, St. Bartholomew's Hospital; Geoffrey Garland, Leeds University; Arthur Oliver Gray, Middlesex Hospital; David Marcus Hanson, University College; Walter Sebastian Herman, B.A. Cantab., Cambridge University; James Stanley Higgs, St. George's Hospital and King's College; Frederick Theophilus Hill, St. Bartholomew's Hospital; John Iles Francis Knight, London Hospital; James Lafayette Lauder, Guy's Hospital; Percy East Lones, University College; Arthur Lowndes, Manchester University; Charles Virgil Nunez Lyne, King's College; Gerald Noel Martin, London Hospital; George Selvanayagam Mather, Ceylon and University College; John Millard, Birmingham University; William Morris, London Hospital; Herbert Henry Powys Morton, King's College; Francis Henry Mosse, B.A. Oxon., Oxford University and King's College; Lionel Page, Bristol University; John Rowland Payne, University College, Cardiff; John Abraham Perera, Ceylon University and University College; Arthur Starkie Plant, Manchester University; Frank Pearce Pocock, King's College and Westminster Hospital; Guy Algernon Pratt, Guy's Hospital; Sydney Jessie Scott Reid, Royal Free Hospital; Ivor Ridge-Jones, University College and St. George's Hospital; Joseph Edward Rivera, Manchester University; Arthur Edward Schokman, Ceylon University and London Hospital; Eric John Staddon, St. Thomas's Hospital; Thomas Joseph Taunton, St. Bartholomew's Hospital; Harold Topham, Leeds University; Donald Sargenson Twigg, Sheffield University; Alfred Stewart Wakely, King's College; William Leslie Webb, Guy's Hospital; and Leslie Gordon White, Leeds University.

At the quarterly examination in Practical Pharmacy held on July 7th and 8th the following gentlemen were approved:—

Charles Beresford Alexander, Liverpool University; Henry Park Ashe, King's College Hospital; John Horatio Baldwin, St. Bartholomew's Hospital; William McRutchinson Binning, University College; Antoun Bishara, Cairo and St. Thomas's Hospital; Henry George Barham, Blackman, Guy's Hospital; Thomas Rufus Bowen, London Hospital and private study; Eric Catford, St.

the year ending June, 1909, it will be found that though the amounts of stocks were precisely the same in the two years, there was a diminution of £94 9s. 9d. on the dividends of the general investments, and of £94 9s. 7d. on those of the Bischoffsheim Fund. This is explained by the fact that the income-tax rebatement on some of the stocks has not yet been received owing to the political situation which prevailed during the financial year just terminated.

On comparing the items of expenditure of the last year with those of the year immediately preceding the following differences will be noticed: (1) a diminution of £330 5s. in the fees paid to committees and hospital officials, due chiefly to the discontinuance for the moment of the returns of cancer cases occurring in the hospital; (2) a further reduction in the farm expenses amounting to £137 0s. 3d.; (3) a reduction of £831 10s. 10d. on the scientific report account, due to a considerable portion of the cost of the large report of 1908 falling for payment within the first half of the year 1909, and to the fact that there was not during last year any large scientific report issued; (4) the office expenses have been somewhat less; (5) an increase of £163 4s. 2d. in salaries and wages, due partly to the honorarium granted to one of the scientific assistants; (6) an increase of £51 8s. 4d. in travelling expenses of the director to attend congresses at Budapest and the Hague, and to visit some of the more important laboratories on the continent; (7) an increase of £262 2s. in the requirements in the laboratory, largely caused by the purchase of expensive apparatus necessary for the research investigations which were going on; and (8) £87 14s. 6d. more has been spent on advertisements this year than the year ending June, 1909.

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Knowing as I well do the amount of self-sacrifice and the many self-denials which such a donation from a lady of very moderate income means, I desire on behalf of the executive committee to thank her publicly through the channel of this report, and at the same time to assure her—a gentle and tender-hearted woman and a lover of animals as she is—of our appreciation of her repeated efforts to correct and counteract prejudices which on the ground of vivisection it has been attempted to arouse against the Fund. Such attempts she with righteous indignation has from time to time taken trouble to show have a tendency, if they have any influence at all, to throw difficulties in the way of scientific research and to frustrate the aims of humanity. A glance at the list of contributions will show that from several other persons the fund has this year derived assistance by their repeated donations, in some instances for the seventh, eighth, and ninth occasion. This loyal support and sympathy is most encouraging to the executive committee, the scientific committee, and the Director and his assistants, each and all of whom are stimulated to continuing and unrelaxing efforts to make progress in the search for knowledge and thus to justify the confidence placed in them. It is, however, still requisite for me as treasurer again to repeat that the annual expenditure greatly exceeds the income derived from investments, and to point out that this expenditure cannot be reduced, but, on the contrary, is quite sure to increase in the next few years. Next year a fourth scientific report which will be issued must make a very heavy demand upon the Fund, and the considerable expenses attaching to removal and to the equipment of laboratories in a new building will shortly have to be found. It is most essential, therefore, that there shall be no falling off in the coming years of the contributions to the working expenses of this Fund.

HENRY MORRIS, Honorary Treasurer.

Professor SIMS WOODHEAD, in seconding the adoption of the report, said that they might gather from it and from the abstract given by Sir William Church, that they had had done in the laboratories under Dr. Bashford and his staff an enormous amount of spade-work. In referring to spade-work he did not mean merely navvy work, but he thought they might congratulate Dr. Bashford and those who had been working with him on what he might call the intelligent sapping and mining of the cancer problem. There had been no great advances, perhaps, but as they saw from the report there had been a large number of very important questions tackled. Those who could read the report from the "inside" would say that even from the point of view of immediate value there had been a very great deal of valuable work done. But quite apart from that there had been a clearing of the ground, which he thought would enable those working in the laboratory to concentrate, and to concentrate much more effectively, upon the remaining problems which had to be solved; and in seconding the adoption of the report he felt that he could congratulate Dr. Bashford and those who had been working with him on working at a question the issues depending upon which were of very great magnitude. One knew that in a difficult question of this kind there might appear to be times when the interest flagged, but those of them who had been on the Executive Committee and had watched the workers had realised what an intense fascination there must be in this subject, partly because of the difficulty of the subject, partly because of the immense amount of work which had to be done, and partly because of the issues that depended upon it.

The resolution was carried unanimously.

On the recommendation of the Executive Committee, the Duke of Bedford, K.G., was unanimously appointed President of the Fund.

Mr. BALFOUR then said from the chair: The next resolution stands in my name, and I propose it with very great pleasure. It is—

That the thanks of this meeting be given to the Chairman and members of the executive committee, the subcommittee, the honorary treasurer, and others who have assisted in the work of the Fund during the past year.

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investigations of the Fund with regard to the hereditary character of cancer. Now, let it be noticed that without our being able to observe relatively short-lived animals, it is almost impossible—in fact, it is quite impossible—to arrive at any conclusion as to the influence of heredity. The staff who carry out our investigations have set systematically to work to make these investigations into heredity in connexion with short-lived animals, and the result, surely, is of the utmost importance, for I gather that they have arrived at the conclusion that the question of heredity in connexion with cancer is almost negligible. I do not know that I may put it higher than that. At all events, nothing has so far clearly come out of experiments conducted on a large scale which should lead us to believe that heredity plays a large part. That, I think, is a fairly safe statement, is it not? If that statement be not unduly incautious, it points—it indicates at all events—that it may prove that as these malignant tumours are not due mainly to hereditary influences they are due to what we may very roughly, and sufficiently accurately for this purpose, describe as the accidents of life, or to causes which, at all events, are not inherent and innate in the organism at birth; and certainly the investigations of the Fund go to show that there are causes which undoubtedly do produce cancer even in the best behaved tissues, even in tissues which in the case of people leading the ordinary normal life never show, or hardly ever show, any malignant growths at all. Well, that surely must be an indication that something can be done to prevent or to diminish cancerous growth. I do not wish in the least to put it too high. 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Yet surely we ought to draw encouragement from those remarkable series of investigations in which it has been shown that the growth and the spread of implanted cancer can be checked. It is quite true that no experiments hitherto made upon original tumours have given the same satisfactory results, but we cannot doubt—at least I should think it is difficult to doubt—that there must be a difference only of degree, not of kind, between the original growth and the implanted growth, and it is therefore surely not unduly sanguine to say that if in certain circumstances it has been found possible to deal successfully with the implanted growth, we need not abandon hope that by further extending our researches we may be able to deal also with the more virulent and refractory form of the original growth. 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Sir HENRY HOWSE having seconded the motion, it was unanimously adopted.

Mr. BUTLIN moved that Sir R. Douglas Powell should be appointed a member of the General Committee, and that Sir Watson Cheyne should be re-elected a representative of the General Committee on the Executive Committee. These elections having been made, and the honorary treasurer of the Fund having been elected for the future an *ex-officio* member of the Executive Committee, Sir HENRY MORRIS, the present honorary treasurer, proposed a cordial vote of thanks to Mr. Balfour for presiding, in the course of which he referred to the great loss which the Fund had sustained through the death of the late King, and to the high philosophical attainments of Mr. Balfour. This was seconded by Dr. ARTHUR NEWSHOLME, and carried with acclamation, when the proceedings terminated.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Second Professional Examination in Anatomy and Physiology, held on June 30th and July 1st, 4th, 5th, and 6th, 88 candidates presented themselves, of whom 53 were approved (including one lady—Miss S. J. Scott Reid, Royal Free Hospital), and 35 were rejected. The following are the names of the successful candidates:—

Cedric Whitfield Armstrong, B.A. Oxon., Oxford University and London Hospital; Edwin Randolph Bailey, Guy's Hospital; Richard Albert Banbury, St. Thomas's Hospital; Burgess Barnett, St. Bartholomew's Hospital; Howard James Bates, Birmingham University; Jamasp Curshedji Bharucha, L.M.S. Bombay, Bombay University and London Hospital; Peshotan Dorabji Bhiwandiwalla, L.M.S. Bombay, Bombay University; Samuel Isaac Blairmann, Middlesex Hospital; William Herbert Blakemore, Manchester University; Ralph Cay Briscoe, St. George's Hospital and King's College; Maurice Hereward Cane, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Ennis Ratcliff Chambers, London Hospital; Richard Challoner Cobbe Clay, King's College and Westminster Hospital; Gerald Cock, Charing Cross Hospital; John Rhys Davies, University College, Cardiff; Richard William Davies, St. Mary's Hospital; James Douglas Driberg, London Hospital; Walter James Ignatius Dwyer, London Hospital; Richard Shirley Fawssett, St. Bartholomew's Hospital; Geoffrey Garland, Leeds University; Arthur Oliver Gray, Middlesex Hospital; David Marcus Hanson, University College; Walter Sebastian Herman, B.A. Cantab., Cambridge University; James Stanley Higgs, St. George's Hospital and King's College; Frederick Theophilus Hill, St. Bartholomew's Hospital; John Iles Francis Knight, London Hospital; James Lafayette Lauder, Guy's Hospital; Percy East Lones, University College; Arthur Lowndes, Manchester University; Charles Virgil Nunez Lyne, King's College; Gerald Noel Martin, London Hospital; George Selvanayagam Mather, Ceylon and University College; John Millard, Birmingham University; William Morris, London Hospital; Herbert Henry Powys Morton, King's College; Francis Henry Mosse, B.A. Oxon., Oxford University and King's College; Lionel Page, Bristol University; John Rowland Payne, University College, Cardiff; John Abraham Perera, Ceylon University and University College; Arthur Starkie Plant, Manchester University; Frank Pearce Pocock, King's College and Westminster Hospital; Guy Algernon Pratt, Guy's Hospital; Sydney Jessie Scott Reid, Royal Free Hospital; Ivor Ridge-Jones, University College and St. George's Hospital; Joseph Edward Rivera, Manchester University; Arthur Edward Schokman, Ceylon University and London Hospital; Eric John Staddon, St. Thomas's Hospital; Thomas Joseph Taunton, St. Bartholomew's Hospital; Harold Topham, Leeds University; Donald Sargenson Twigg, Sheffield University; Alfred Stewart Wakely, King's College; William Leslie Webb, Guy's Hospital; and Leslie Gordon White, Leeds University.

At the quarterly examination in Practical Pharmacy held on July 7th and 8th the following gentlemen were approved:—

Charles Beresford Alexander, Liverpool University; Henry Park Ashe, King's College Hospital; John Horatio Baldwin, St. Bartholomew's Hospital; William McHutchinson Binning, University College; Antoun Bishara, Cairo and St. Thomas's Hospital; Henry George Barham, Blackman, Guy's Hospital; Thomas Rufus Bowen, London Hospital and private study; Eric Catford, St.

Bartholomew's Hospital; William Lonsdale Cockcroft, Manchester University; Stephen Walter Coffin, Guy's Hospital; Albert George William Compton, Cambridge University and St. Mary's Hospital; Edmaund Sheppard Cuthbert, St. Bartholomew's Hospital; Ernest Ivon Davies, University College, Cardiff; Ralph Marsh de Mowbray, St. Thomas's Hospital; Carl Keating Graeme Dick, St. Mary's Hospital; Wilfred Angel Easton, Guy's Hospital; David Trevor Evans, University College, Cardiff; Louis Edward Forster, Liverpool University; John Wesley Gilbert, Bristol University; Harold Cane Codding, Guy's Hospital; Frank Cyril Greig, University College; Henry James Hacker, St. Bartholomew's Hospital; Percy Douglas Hamilton, Charing Cross Hospital; Charles Barnard Hawthorne, Birmingham University; Charles Lyon Herklots, B.A. Oxon., University College Hospital; Abdel Halim Hilmy, Cairo and St. Thomas's Hospital; Leonard Cockburn Dundas Irvine, B.A. Cantab., Cambridge University and Guy's Hospital; Richard Bertram Johnson, Bristol University; Charles George Gordon Keane, St. Mary's Hospital; Noël Sigismund Koch, St. Bartholomew's Hospital; Jasper Lakeman, London Hospital; Colwell de Calis Winkley Langdon, Manchester University and private study; Basil Hugh Campbell Lea-Wilson, Cambridge University and St. Bartholomew's Hospital; Charles Cooper Ling, London Hospital and private study; Patrick Andrew Mackay, St. Mary's Hospital; William Kellock McKay, Guy's Hospital; Kenneth Holl McMillan, St. Thomas's Hospital; Labib Abdul Malik, St. Mary's Hospital; Robert Charles Matson, Guy's Hospital; Cyril Cassan Messiter, St. Bartholomew's Hospital; Henry Naunton Morgan, University College, Cardiff; Reginald Sperling Morshead, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Herbert Guy Moser, St. Bartholomew's Hospital; Hubert Frederick Overend, Manchester University; Walter Justice Paramore, University College; George Musgrave Parker, Cambridge University and St. Bartholomew's Hospital; Harold Parker, Leeds University; Mahamarrakkelegey Gregory Perera, Ceylon Medical College and University College; Stanley Victor Percy Pill, St. Mary's Hospital; Thomas Bennion Bourne Price, London Hospital; William Reginald Pryn, Guy's Hospital; Bertram Pyman, University College, Cardiff; Alan Filmer Rook, Guy's Hospital; George Francis Rowcroft, St. Bartholomew's Hospital; Harold Arthur Rowell, St. Thomas's Hospital; Gerald Davenant Shann, St. George's and King's College Hospitals; John Patrick Shaw, Middlesex Hospital; Francis Robert Bradley Skrimshire, St. Thomas's Hospital; Frederick Lionel Spalding, Guy's Hospital; Thomas Sidney Stafford, Birmingham University; Gavin Stiell, St. Thomas's Hospital; Frank Sykes, Leeds University; Mom Chow Thavara, Guy's Hospital; Eric Morse Townsend, Middlesex Hospital; Algernon Randolph Upton, St. Bartholomew's Hospital; William Ernest Wade, University College, Cardiff; John Rollo Noel Warburton, St. Thomas's Hospital; George William Watson, Leeds University; George Harvey Duder Webb, University College Hospital; Edward Parker Wallman Wedd, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Esmond Tetley Willans, B.A. Cantab., Cambridge and Leeds Universities; Norman Jeune Willans, Middlesex Hospital; Thomas Mansergh Wood-Robinson, Middlesex Hospital; and Ernest Jenner Wright, St. Mary's Hospital.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

At a meeting of the Council held on July 14th the undermentioned diplomas were conferred upon the following gentlemen:—

M.R.C.S.—Robert Edward Collins, Edinburgh University; and Damodar Narayenswamy Mudliar, Bombay and Manchester Universities and University College Hospital.

L.D.S.—Harold Harrison, Guy's Hospital; William Lowe Jackson, Charing Cross and Royal Dental Hospitals; and Edward Algernon Weaver, Birmingham University.

UNIVERSITY OF DURHAM.

At examinations for the degree of Bachelor of Medicine, held recently, the following candidates were successful:—

FIRST EXAMINATION.

Elementary Anatomy and Biology, Chemistry and Physics.—Charles Norman Gover, College of Medicine, Newcastle-upon-Tyne; Charles Stewart Parnell Hamilton, Charing Cross Hospital; Cyril Jacobs and Leo Magee, College of Medicine, Newcastle-upon-Tyne; Roland Sells, Guy's Hospital; Kirton Ivor Seager Smith, College of Medicine, Newcastle-upon-Tyne; and Hugh Gordon Sparrow, St. George's Hospital.

Chemistry and Physics.—Cyril Armstrong, Ishmael Gustavus Cummings, and Geoffrey Bede Egerton, College of Medicine, Newcastle-upon-Tyne; Leonard Wilfrid Hearn, Sheffield University; Francis Metcalfe, Ernest Charles Gilchrist Parker, Jane Penman, and Home Alexander Playfair Robertson, College of Medicine, Newcastle-upon-Tyne; Donald Charles Scott, Guy's Hospital; and James Calvert Spence and Alfred Cresswell Taylor, College of Medicine, Newcastle-upon-Tyne.

Elementary Anatomy and Biology.—Arthur Causton Freeth, St. Mary's Hospital; Frank Wilson Harlow and James Dixon Johnson, College of Medicine, Newcastle-upon-Tyne; Grace Winifred Pailthorpe, London School of Medicine for Women; Cecil Tom Gann Pearce, College of Medicine, Newcastle-upon-Tyne; Hugh Ley Puxon Peregrine, St. George's Hospital; and Eric Knowles Ryan, Sheffield University.

SECOND EXAMINATION.

Anatomy, Physiology, and Materia Medica.—Second-class Honours: Robert Lacy Kitching, College of Medicine, Newcastle-upon-Tyne; and Edward Phillips, College of Medicine, Newcastle-upon-Tyne, and London Hospital. Pass List: Ernest Bramley, Garfield Carse, Cyril Duncan, Laurence Hêber Warneford Iredale, Andrew Govan McFarlane, Nora Murphy, Carinna Augusta Barry O'Neill, Arthur Patterson, John Logan Pringle, and Evelyn Ritson, College of Medicine, Newcastle-upon-Tyne; Felix Stephens Reed, M.R.C.S., L.R.C.P., University College, London; and Cedric Overton Shackleton, James Stewart Soutter, George Edward Stephenson, Arthur Sutcliffe, B.A., and Gordon Stewart Woodman, College of Medicine, Newcastle-upon-Tyne.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS OF EDINBURGH AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At recent examinations held in Glasgow the following passed their respective examinations:—

First Professional Examination.—Reginald Cornelius Marston, Leicester; Edith Mary Hewlett, Glasgow; John Rennie Carrie Gordon, Glasgow; John Gilchrist, Glasgow; George Loudon Neil, Lesmahagow; John Crawford, Paisley; Amy Blanche Rubina Anderton Perriton, Bangalore; Madeline MacWilliam, Glasgow; William Lyle Paterson, Glasgow; Andrew Crawford, Glasgow; John Alexander Smith, Glasgow; George Thomson, Glasgow; John William Cowie, Tillicoultry; John Berry, Leyland, Lancs; and John Corcoran, Cork.

Second Professional Examination.—Evan Edward Owens, Wales; Amy Blanche Rubina Anderton Perriton, Bangalore; William Bannatyne, Paisley; Willie Ashworth, Halifax, England; James Grant Morrin, Glasgow; William Laird, Larkhall; Alexander Morton Robertson, Glasgow; Alexander Scott Mackenzie, Victoria, New South Wales; and George Logan Clark, Glasgow.

Third Professional Examination.—David Winthrop Woodruff, Wilton; George William Mason, Monmouth, South Wales; Francis William Grant, Uddingston; Arthur Lloyd Edwards, Carnarvon; Padamji Ardeshir Dastoor, India; and Michael Vincent Walsh, Cork.

Final Examination, and were admitted L.R.C.P.E., L.R.C.S.E., and L.R.F.P.S.G.—Robert John Helsby, Denbigh, North Wales; Jane Hall Filshill, Edinburgh; Kedar Nath, Lahore; Alberga Delrio Constantine Rob, Jamaica; John Alexander Irwin, Glasgow; Zebina Annette De Cruz, Cochin, India; James Sullivan, Glasgow; Thomas Walsh, Glasgow; Maganlal Manekial Daru, Bombay; and Albert Robert Henry Harrison, Cork.

UNIVERSITY OF ABERDEEN.

The following degrees were conferred on July 13th:—

Degree of M.D.—†William Brander, M.B., †John Elrick Kesson, M.B., *James Elmsly Mitchell, M.B., John Joseph Johnson, M.B., Rae McRae, M.B., Thomas Taylor, M.B., and James Ingram Pirie Wilson, M.B.

* Commendation for Thesis. † Highest honours for Thesis.

Degrees of M.B., Ch.B.—Robert Semple (Second Class Honours), James Bruce Anderson, Robert Moir Lechmere Anderson, James Scott Annandale, John Alexander Macarthur, Charles Archibald McDonald, Allan John McLeod, John James Alexander Neil, James John du Preez, Edmund Lewis Reid, John Ritchie, James Dewar Robertson, Charles Kelman Smith, Harold Edgar Smith, M.A., John William Stephen, William Taylor, Henry James Thomson, and William Milne Tough.

Douglas Gordon Cheyne has passed all the examinations for the degrees, but will not graduate until he has attained the necessary age.

The Diploma in Public Health was also conferred on:—

Williamina Abel, M.D. Aberd., Alan Deed Brunwin, M.D. Cantab., Robert Reid Duncan, M.B. Aberd., Kenneth Ross, M.A., M.B. Aberd., Alfred John Watson Stephen, M.B. Aberd., and George Alexander Williamson, M.A., M.D. Aberd. (with credit).

FOREIGN UNIVERSITY INTELLIGENCE.

Algiers: Dr. Weber has been appointed Professor of Anatomy in succession to the late Dr. Trolard.—*Berne:* Dr. Ries has been recognised as *privat-docent* of Psychology.—*Bonn:* Dr. G. Stertz has been recognised as *privat-docent* of Psychiatry and Neurology.—*Bordeaux:* Dr. Aubaret has been appointed (after *concours*) Professeur *agrégé* of Anatomy and Embryology. Dr. Rocher has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Budapest:* Dr. Felix von Sontágh, *privat-docent* of Children's Diseases, has been granted the title of Professor.—*Cracow:* Dr. Adam Wrzosek has been appointed Extraordinary Professor of General and Experimental Pathology; Dr. Stanislaus Dobrowolski, Dr. Nowotny, and Dr. Max Rutkowski have been granted the title of Professor.—*Florence:* Dr. G. Menini has been recognised as *privat-docent* of General Pathology, Dr. G. Giacomelli as *privat-docent* of Operative Medicine, and Dr. Savarè as *privat-docent* of Midwifery and Gynæcology.—*Heidelberg:* Dr. Krehl has, contrary to the information published in German medical journals, decided to remain in Heidelberg instead of going to Leipsic. The chair of Surgery, which becomes vacant by the retirement of Dr. Narath, has been offered to Dr. Wilms, Professor of Surgery in Basle. Dr. Schönborn, *privat-docent* of Medicine, has been promoted to an Extraordinary Professorship.—*Innsbruck:* A demonstration has been made by the students against Dr. Pommer, the professor of pathological anatomy, on account of the number of candidates he had rejected in the recent *rigorosum*, or University examination. Apparently the only result was that the Professor cut his lecture short.—*Jena:* Dr. Roepke, *privat-docent* of Surgery, has been promoted to an Extraordinary Professorship.—*Lille:* Dr. Vanverts has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Lyons:* Dr. Collet has been appointed to the chair of Internal Pathology

in succession to Dr. Roque. Dr. Latarjet has been appointed (after *concours*) Professeur *agrégé* of Anatomy and Embryology. Dr. Leriche, Dr. Thévenot, and Dr. Tavernier have been appointed (after *concours*) Professeurs *agrégés* of General Surgery, and Dr. Bretin Professeur *agrégé* of Pharmacy.—*Montpellier:* Dr. Delmas has been appointed (after *concours*) Professeur *agrégé* of Midwifery. Dr. Massabuan has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Munich:* Professor Döderlein has been offered the chair of Gynæcology in Berlin in succession to Dr. Bumm, but the authorities having consented to rebuild his clinic, he has consented to remain instead of migrating to Berlin.—*Nancy:* Dr. M. J. Schmidt has been appointed to the chair of Clinical Medicine in succession to Dr. Bernheim. Dr. Lucien has been appointed (after *concours*) Professeur *agrégé* of Anatomy and Embryology; and Dr. Busquet Professeur *agrégé* of Physiology. Dr. Binet has been appointed (after *concours*) Professeur *agrégé* of General Surgery.—*Naples:* Dr. Reinhard Dohrn, who has charge of the Zoological Station, has been granted the title of Professor by the Prussian Government.—*Paris:* Dr. Rouvière and Dr. Grégoire have been appointed Professeurs *agrégés* (after *concours*) of Anatomy and Embryology; Dr. Jean Camus, Professeur *agrégé* of Physiology; Dr. Tiffeneau, Professeur *agrégé* of Materia Medica; Dr. Laignel-Lavastine, Professeur *agrégé* of Mental Diseases and Pharmacodynamics; Dr. G. S. Roussy, Professeur *agrégé* of Pathological Anatomy; Dr. P. R. Guéniot and Dr. Lequeuy, Professeurs *agrégés* of Midwifery; and Dr. A. F. Terrien, Professeur *agrégé* of Ophthalmology. Dr. A. Gilbert has been appointed to the chair of Clinical Medicine in succession to Dr. Dieulafoy. Dr. Chevassu, Dr. Okinczye, and Dr. A. Schwartz have been appointed (after *concours*) Professeurs *agrége* of General Surgery.—*Toulouse:* Dr. Dambrin and Dr. N. J. Martin have been appointed (after *concours*) Professeurs *agrégés* of General Surgery.—*Turin:* Dr. Eduardo Poggio has been recognised as *privat-docent* of Neurology and Dr. Marco Treves as *privat-docent* of Psychiatry.—*Zürich:* Dr. Wyss, Professor of Hygiene, is retiring at the close of the current session. Dr. H. von Wyss has been recognised as *privat-docent* of Medicine.

LITERARY INTELLIGENCE.—Mr. H. K. Lewis will publish shortly the fourteenth edition of the "Extra Pharmacopœia," by Martindale and Westcott. Some important changes have been made in the book. It was felt that the new volume should not be thicker than the thirteenth edition, and in order, therefore, to include the large amount of new matter the size of the page was enlarged to 6⅞ by 4⅛ inches. The paper is also less transparent than the last edition, and it is hoped that these two changes will render the book still more convenient and readable. A few of the more important changes in the matter of the book may be briefly referred to. A large number of new chemical and pharmaceutical preparations have been introduced; the pages devoted to vaccine and organo-therapy have been completely revised; patent medicines up to the number of 250 in all are now fully described; the article on radium has been recast and deals with the question recently raised regarding the standardisation of this element; the epitome on iontophoresis brings together much scattered work that has been done and published on this matter; the revision of the molecular weights has been made throughout the book in accordance with the alterations in eight atomic weights within the last two years by the International Commission. The new work also includes a chapter on Acidi Lactici Bacilli-Therapy, being conclusions of a considerable amount of experimental work in which the authors have been engaged with up-to-date literature on the subject. A supplement containing the results of analyses of over 300 organic bodies accompanies the present issue. This is to be obtained separately if desired. We hope to publish a critical review of the new edition in greater detail when it has appeared publicly.—Messrs. Rebman will publish in the autumn a work on the abdomen by Dr. W. Cuthbert Morton. In the work we are informed that a definition of the principles which ought to be followed in anatomical description is accompanied by an illustration of both text and plates of the thorough and consistent application of those principles to the abdomen proper. In the text the peritoneal sac is described from an altogether new point of view, and in addition its different portions are dealt with in relation to the individual organs in such a way that the whole sac is gradually built up. The claims made for the work suggest that it ought to be of service to teachers in anatomy and also practitioners.—The second volume of "The National Health Manuals," which Dr. T. N. Kelynack is editing, will be issued during the next two or three weeks by Robert Culley. It is entitled "Childhood," and deals with various aspects of child life. Twelve well-known medical authorities contribute chapters, and the work will be issued at the popular price of 1*s.* net.

THE BRITISH DENTAL ASSOCIATION.—The annual meeting of the Western Branch of the British Dental Association was held at Plymouth recently. The retiring President, Mr. T. T. Genge (Clifton), welcomed the new President, Mr. G. R. Brittan (Plymouth). In the course of an interesting address the President urged the importance of "The Care of the Teeth," and at the close Mr. Brittan was awarded a vote of thanks. A discussion took place in reference to the Bill to amend the Dental Act of 1878, and eventually it was resolved that—

> The branch, feeling that the majority of men who would be recognised under the Bill were utterly unfitted to serve the dental requirements of the public, was unable to give its sanction to the Bill.

There was a good attendance of members, amongst those present being: Mr. E. L. Dudley (Bath), Mr. J. J. Sanders (Barnstaple), Mr. F. Sleep (Plymouth), Mr. S. Carter (Bath), Mr. F. J. Hatton (Bristol), Mr. H. O. Dickin (Yeovil), Mr. H. Garbrell (Penzance), Mr. S. G. Yates (Ross), Mr. W. H. Goodman (Exeter), and Mr. A. E. Gibson (Clifton). The annual dinner was held in the evening at the Grand Hotel; there was a good attendance which included several medical men. The next annual meeting is to be held at Barnstaple.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of this society was held on July 13th, Dr. G. F. Blandford, the President, being in the chair. Twenty directors were present. Four medical men were elected members of the society. The sum of £1350 10*s.* was voted for the payment of the half-yearly grants to the annuitants of the charity. A widow of one of the members applied for relief; her husband had paid in subscriptions £21 and left his widow with an income of £20 per annum. The court voted that a grant at the rate of £50 per annum be made. Membership of the society is open to any registered medical practitioner who at the time of his election is resident within a 20-mile radius of Charing Cross. The annual subscription is 2 guineas, but a member may become a life member by paying one sum, the amount of which is fixed by the by-laws of the society. The next election will be on Oct. 12th, and application forms must reach the secretary on or before Sept. 21st. The invested moneys of the society now amount to £100,550. Full particulars and application forms for membership may be obtained from the secretary at the office of the society, 11, Chandos-street, Cavendish-square, London, W.

CHICHESTER INFIRMARY.—Mention was made in these columns on June 18th of the liquidation of the debt on the Chichester Infirmary and the proposal to reconstruct the building as a memorial to King Edward VII. This scheme is now well on towards fruition, inasmuch as at a public meeting held on July 15th a resolution was unanimously carried agreeing to the proposed scheme for reconstructing the infirmary at a cost of £20,000. The movement has had an excellent start with the promise of £10,000 from Mr. W. D. James, of West Dean Park, Chichester, himself a member of the board of management of the infirmary, and one of His late Majesty's personal friends. It was while staying with Mr. James that His Majesty made frequent visits to the infirmary, and Mr. James told the meeting of King Edward's particular interest in the Chichester institution; and, further, that he heard His Majesty say the last time he saw him before his death that his wish nearest his heart was that some means would be discovered to cure cancer. Sir Frederick Treves, who had already reported to the board of management upon the hospital, pointed out that even if the Chichester Infirmary had been built 30 years it would now be entirely out of date, whereas the institution had existed a century. The enormous strides that had been made in medical and surgical knowledge had rendered the institution obsolete. The speaker, however, paid an excellent tribute to the medical staff for the work they were doing. The meeting, which was presided over by the Duke of Richmond

and Gordon, was by no means a county one, and the proposed memorial is only to be considered as applying to the district covered by the Chichester Infirmary—namely, West Sussex and East Hampshire.

BRISTOL EYE HOSPITAL.—As a result of the recent centenary fête of the Bristol Eye Hospital the sum of £1678 has been raised for the funds of the institution.

THE Paris Academy of Medicine has elected Dr. Pagliani of Turin and Dr. Filehne of Breslau corresponding members.

Dr. Vollbrecht, Surgeon-General in the Prussian army, has been offered the post of Director-General of the Medical Department of the Turkish army, with the object of its reorganisation on the German system.

THE President and Council of the Royal Sanitary Institute will be at home to members of the British Medical Association at the new premises of the institute and the Parkes Museum of Hygiene on Wednesday afternoon, July 27th, from 3 to 6 P.M.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Midwives (No. 2) Bill.

Earl BEAUCHAMP, as Lord President of the Council, has introduced in the House of Lords the Midwives (No. 2) Bill. It has been read a second time. In its main provisions it is the same as the Midwives Bill which was withdrawn some weeks ago, but in several points the drafting has been altered.

Public Health ('Health Visitors) Bill.

Mr. BURNS has presented a Bill in the House of Commons "to enable local authorities under the Notification of Births Act, 1907, to appoint health visitors." It has been read a first time. There is already a power existing in London to appoint women health visitors to visit the homes of the poor to advise them on the feeding and rearing of infants. Mr. BURNS's object is to extend this power to large cities in the provinces.

HOUSE OF LORDS.

THURSDAY, JULY 14TH.

Education (Physical Training) Bill.

Viscount HILL moved the second reading of the Education (Physical Training) Bill. He explained that its object was to provide for physical training in elementary, secondary, and continuation schools. The Bill had been drawn up by the National Hygiene League. It raised the age up to which the physical training should be given to 16 years and provided that the teachers must have a sound knowledge of physical culture. The promoters of the Bill wanted careful instruction as to the proper way of standing and breathing.

Earl BEAUCHAMP (speaking on behalf of the Government) expressed approval of the desire of the noble lord to improve the physical training of children, but said that the Government could not accept the Bill as it stood. He pointed out that the work of physical training in the schools had only been lately reorganised. The first step was to train teachers, and that work was already in hand. He therefore asked the noble lord to withdraw the motion for the second reading of the Bill in the meantime.

After some discussion Viscount Hill withdrew his motion.

TUESDAY, JULY 19TH.

The Midwives Bill.

Earl BEAUCHAMP moved the second reading of the Midwives Bill, which he said was to amend the Midwives Act of 1902. That Act, as was often the case with new legislation, required that amendments should be made in several directions. It was to make them that the Bill was introduced. Proceeding to deal with the effect of the Midwives Act of 1902, he said that since it had come into operation there had been a very remarkable decrease in deaths of infants of the character which might be prevented by efficient midwives. A Departmental Committee had been appointed to inquire how far the Act had been a success and the amendments of its provisions now proposed were substantially founded on the recommendations of that committee. He should like to take this opportunity of paying a tribute to the admirable work which had been performed by Sir Francis Champneys, chairman of the Central Midwives Board. He had devoted a large amount of time in order to secure the successful working of the Act. He had discharged all the functions of the Board to the general commendation. It was very fortunate that in the early years of its existence the Board should have had the guidance of a man who enjoyed the confidence of the medical profession. Earl Beauchamp then went on to explain in detail the provisions of the Bill (which have already been published in THE LANCET). The aim had been to make the Bill, as far as possible, non-contentious, and to avoid, as far as possible, the very large issues involved in changes in Poor-law relief. Without in any way trenching on the larger question, he hoped that the Bill would be framed so as to secure general approval. He learned that there was a movement to bring Ireland within the operation of the Midwives Act through amendments to this Bill. However, he should say that that would be a matter of difficulty.

The Marquis of LONDONDERRY said that he felt strongly that the case for the extension of the Midwives Act to Ireland should be considered in connexion with this Bill. It inflicted great injustice on the midwives of Ireland that they should be excluded from the advantages of this legislation. He did not see why their hardship should not be removed by an amendment.

The Earl of MAYO and Lord CLONBROCK also urged the extension of legislation on midwives to Ireland.

Lord ASHBOURNE also did not see any great difficulty in extending the Bill to Ireland.

Lord BALFOUR of BURLEIGH said that although legislation similar to that contained in the Bill would be welcome in Ireland, there was very considerable technical difficulty in a Bill, which was an amending one, to extend it into a statute dealing with the circumstances of Ireland. He spoke with some knowledge on that point, because it was he who had the privilege of piloting the principal Act through the House. He heard with the greatest possible pleasure the satisfactory statement as to the operation of the Midwives Act during the last few years. It entirely justified the passing of the Act. The noble earl had done no more than justice in paying a tribute to Sir Francis Champneys and the Central Midwives Board.

Earl BEAUCHAMP, in replying to the debate, expressed satisfaction with the course of the discussion. He promised to give consideration to any amendments which noble lords might bring forward in committee, although he could not promise to accept all of them.

The motion was agreed to, and the Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, JULY 13TH.

Indian Medical Service.

Mr. KELLY asked the Under Secretary of State for India whether the Secretary of State had yet received from the Government of India a report on the medical service of India; whether he was aware of the belief among Indian medical men that the delay was the outcome of the desire and intention of the Indian Government to reserve the higher grades of the medical service to people of this country, without regard to efficiency, expenditure, or justice to the people of India; and what steps did he propose to take to bring the highest posts within reasonably easy reach of all medical men without distinction of nationality.—Mr. MONTAGU replied: The answer to the first part of the question is in the negative. As regards the second part of the question, the Secretary of State finds it difficult to imagine that any such belief exists. The Secretary of State cannot now formulate proposals.

Medical Inspection of School Children.

In Committee of Supply on the Education vote,

Mr. RUNCIMAN (President of the Board of Education) in the course of his speech said: Let me say a word or two on the subject of medical inspection of school children. Medical inspection has not been fully organised in this country for a very long time, but every one of the local authorities has now undertaken that work, and already more than 1,500,000 children have been examined. One thousand medical officers have been appointed, of whom 70 are women, and there are now no less than 300 school nurses. It follows of necessity that where you have medical inspection carried out on such a large scale as this—and carried out, I believe, on the whole efficiently—there must be something in the nature of treatment to follow. All cases are, I believe, first of all sent to a private medical practitioner, and the procedure is something like this. The local education authority being responsible for providing the inspection appoints a school officer. The officer reports his finding to the local education authority. He does so privately. The local authority communicates these findings, also privately, to the school doctor or to the parents. It is then the duty of the parents to obtain the necessary treatment. That is the normal course. However, there are large numbers of parents who are neglectful or unwilling to fulfil their duty, or they may be unable to provide the necessary treatment. Those cases are met in a variety of ways. Up to the present I find that some authorities are paying for nursing assistance out of the education rate, which they are quite entitled to do. Sixty-five authorities have done this; 33 of them are paying for spectacles out of the rates; 15 of them are contributing to hospitals out of the rates; and ten of them have established school *crèches*. Besides that, I think I ought to add that many private agencies and many hospitals have been lending their aid in this good work. That means not only that the lives of these children will be made happier, but that they will grow up much more efficient human beings, and the work done in the school in respect of them will certainly not be thrown away. On the other side of their physical condition, I have to report that great developments have taken place in the matter of physical exercises. Two years ago some members of my Board embarked on devising a general physical exercise syllabus largely on the Swedish system. That syllabus has met with great acceptance and 92,000 copies of it have been sold. It would be impossible to carry on the physical exercise work in all the schools under the local education authorities unless the teachers were prepared to play a part in it, and in the training colleges no less than 4700 students have passed the examination in physical exercise since Christmas of last year. That means that those teachers who go up from the training colleges will not be specialised physical exercise teachers, but it will be part of their ordinary work. It has been suggested by Lord Curzon and Lord Roberts recently that such physical degeneration of the people as exists might be arrested by universal military service. I am not going to embark on that very large subject, except to say that universal service could not meet this great problem. Military service can only benefit selected men. Those who are least physically fit, those who most require physical exercises, would be debarred from the very training and opportunity that would be provided under a military system. Moreover, military service does not include women and girls and can be in no way a substitute for physical exercise. It can only include those who are comparatively grown up. What we want to-day is to get hold of the children as early as possible and enable them not only to develop their muscles when grown up but to enable them to grow up well. The Board looks upon this new work as a national service, both from the point of view of discipline and of physique. There are two similar subjects to which I must refer. One is the teaching of what is known in education jargon as "mother-craft," the care of babies, and the other is the teaching of temperance. Last year I suggested that there might

be more classes for this purpose. Some experiments have been successfully made in South Wales and many authorities in other parts of the country have been making similar experiments. They are being carefully watched by the Board with a view to discovering how the subject can best be dealt with. The temperance syllabus has been largely used by the local authorities all over the country and 33,000 copies have been sold already. That is one way of measuring the extent to which it has met the approval of local authorities. Upwards of 200 education authorities have arranged for the definite teaching of temperance on the lines of the syllabus. I hope that will bear good fruit as time goes on.

The Milk-supply.

Sir FRANCIS CHANNING asked the President of the Local Government Board whether, having regard to the fact that no legislation to secure purity of milk was contemplated this session, he proposed to adopt any further administrative steps this year for that object.—Mr. BURNS wrote in reply: I regret that it was not possible to reintroduce the Milk and Dairies Bill this session, and I am afraid that, pending the reintroduction of the Bill, administrative action in the direction of preventing the introduction of impurities into milk must necessarily be of limited scope. Certain inquiries have been and are being made by my inspectors into other aspects of the matter, such as the addition of preservatives to milk, and when these inquiries are complete I will carefully consider what administrative action can be taken. Pending legislation, it is to be hoped that the local authorities will exercise to the full such powers as they at present possess.

THURSDAY, JULY 14TH.

Midwives in Ireland.

Viscount CASTLEREAGH asked the Chief Secretary to the Lord Lieutenant of Ireland whether he proposed to introduce a measure dealing with midwives in Ireland on the lines of the legislation already in operation in England, subject to the necessary modifications to meet special Irish conditions.—Mr. BIRRELL answered: I do not propose to introduce legislation on the subject, at all events during the present session. I would point out that there is not the same urgency in the matter in Ireland as in England, having regard to the powers which boards of guardians in Ireland already possess.

The Adulteration of Flour.

Mr. BROADLEY asked the President of the Local Government Board whether he would consider the advisability of prohibiting the introduction of a so-called improver into genuine flour, as it had been found that the improvers of certain chemical companies contained arsenic, and many of them were simply preparations of purified bone ash, while others contained large quantities of gypsum or sulphate of lime; and whether he proposed to take any steps to deal with the use of these substitutes for the food values of pure flour in view of the provisions of the Bread Act of 1836. The honourable Member further asked whether samples of the different flours for sale in the United Kingdom had been taken by the Government food inspectors for the purpose of analysis; and whether it had been found to be a practice among some millers to adulterate the flour by the addition of chemicals of an injurious character with a view to increasing its whiteness, and also to give the flour made from a poor non-glutinous wheat the capacity to rise when in the process of baking, which would otherwise have to depend for its raising properties on the natural gluten contained in the wheat, and that, glutinous wheats being over a series of years the most expensive, the manufacturers who practised these methods were reaping a financial advantage at the risk of the consumer and supplying a flour which had not its proper food value in gluten.—Mr. BURNS (in a written answer) replied: The inquiry which I have directed into the bleaching of flour and the use of so-called improvers in its preparation is proceeding, and the points raised in these questions are receiving attention.

Measles and Whooping-cough in the Metropolis.

Sir WILLIAM COLLINS asked the President of the Local Government Board whether, in view of the large aggregate mortality from measles and whooping-cough in London, he would be prepared to approve of the utilisation of such hospitals of the Metropolitan Asylums Board as might not be required for notifiable diseases for the voluntary admission and treatment of children suffering from measles and whooping-cough.—Mr. BURNS wrote in reply: The question of the practicability of utilising the spare accommodation in the institutions under the control of the managers of the Metropolitan Asylum District for diseases other than those with which they are at present empowered to deal is under consideration, and I understand that a proposal on the subject is coming before the managers at the next meeting. I shall not lose sight of the matter.

Spirit in Medicines.

Mr. PRIMROSE asked the Chancellor of the Exchequer whether he would be willing to allow a drawback of the duty on spirit used by medical practitioners, chemists, and druggists.—Mr. LLOYD GEORGE (in a written answer) replied: I have given my sympathetic consideration to this matter, but the practical difficulties are very serious, and I am afraid I cannot undertake to grant such a drawback.

MONDAY, JULY 18TH.

The Standardisation of Disinfectants.

Sir GILBERT PARKER asked the President of the Local Government Board whether the Government would consider the advisability of altering the law relating to disinfectants so as to secure a standard which would adequately protect the public against spurious compounds which gave a false sense of security.—Mr. BURNS replied: The standardisation of disinfectants is a subject of great difficulty upon which expert opinion is divided. I do not think it would be practicable to deal with it at the present time.

Experiments on Living Animals.

Dr. ADDISON asked the Secretary of State for the Home Department whether, in view of the fact that the operation of spaying two rabbits under an anæsthetic by a skilled operator without his licence being in order had been declared a contravention of the Cruelty to Animals Act, 1876, he proposed to take any action in regard to the corresponding operation which was performed in numbers of cases on young pigs and on young male cattle and sheep in this country every year by unqualified persons and without an anæsthetic.—Mr. CHURCHILL answered: No, sir. The operation on the rabbits being "an experiment calculated to give pain" and performed without the necessary authorisation was a breach of the Cruelty to Animals Act, 1876. The other operations to which my honourable friend refers do not come within that Act, and I am advised that there is nothing illegal in them if carried out *bonâ fide* for commercial or domestic purposes and without causing unnecessary suffering. I have no evidence that the existing law with regard to them requires amendment.

TUESDAY, JULY 19TH.

Elementary Schools (Instruction in Hygiene) Bill.

Dr. ADDISON, in moving for leave to bring in a Bill to require that in public elementary schools instruction should be given in hygiene and to girls in the care and feeding of infants, pointed out that ignorance of these matters was one of the greatest of all causes of physical degeneration. At the present time it was a fact that 120,000 children died annually under the age of 12 months; that was a proportion of 1 in 4. A large part of this waste of child life was due to improper feeding and want of care on the part of those who had to nurse the children. He admitted that the Notification of Births Act had brought about some improvement. However, there was still a high death-rate amongst infants. To combat this circumstance he thought that it was necessary to begin to instruct girls at school in the care of children. The instruction which would require to be given to them was quite simple, and it would not take up much of the school time. If girls were taught about the care of infants they would know, when they became mothers, that a baby should have no other food artificially except milk. The effect of this knowledge, he was sure, would lead to a diminution in the death-rate of infants to a very large extent.

Leave having been given, the Bill was introduced and read a first time.

The Administration of Anæsthetics.

Sir WILLIAM COLLINS asked the Secretary of State for the Home Department whether it was proposed to introduce legislation to carry out the suggestions of the Departmental Committee presided over by Sir Malcolm Chalmers, which inquired into the question of deaths resulting from the administration of anæsthetics, and whether any communication had been made to or received from the General Medical Council with a view to requiring a knowledge of anæsthetics and their administration as part of the medical curriculum.—Mr. CHURCHILL wrote in reply: As stated in the answer given on the 12th instant to a question by the honourable and learned Member for the East Toxteth Division of Liverpool, the recommendations of the Coroners' Committee are now under consideration, and I hope, when time permits, to propose legislation with regard to them. As regards the second part of the question, I would refer my honourable friend to paragraph 15 of the committee's report on deaths from anæsthetics and to the evidence given before the committee by Sir Donald MacAlister, President of the General Medical Council. Sir Donald MacAlister explained that the General Medical Council in 1906 issued a recommendation that instruction in anæsthetics should be a compulsory part of the medical curriculum, and all examining and licensing bodies with power to grant qualifications entitling the holders to be registered under the Medical Acts have followed this recommendation, so far as their powers permitted, or are seeking powers to follow it. Correspondence took place with the General Medical Council on this subject in 1908; but neither this office nor the Privy Council Office has had any communication with the Council since Sir Donald MacAlister's evidence was given.

WEDNESDAY, JULY 20TH.

The International Committee on Mental Diseases.

Sir WILLIAM COLLINS asked the Secretary of State for Foreign Affairs whether it was proposed again to send official representatives from Great Britain to the meeting of the International Committee on the Causes and Prophylaxis of Mental Diseases to be held this year at Berlin in October; and whether the Italian Government, with whom the formation of the committee originated, had approached His Majesty's Government in the matter or had propounded any scheme for the future working of the International Committee.—Sir EDWARD GREY wrote in reply: The answer to the second part of the question is in the negative, and the question of the participation of His Majesty's Government in the meetings of the committee has, therefore, not yet been considered.

BOOKS, ETC., RECEIVED.

ARNOLD, EDWARD, London.

Fractures and Separated Epiphyses. By Albert J. Walton, F.R.C.S. Eng., M.S. Lond., L.R.C.P., M.B., B.Sc. Lond. Price 10*s.* 6*d.* net.

BAILLIÈRE, TINDALL, AND COX, London.

A Manual of Nursery Hygiene. By W. M. Feldman, M.R.C.S., L.R.C.P. Price 2*s.* 6*d.* net.

The Ear and its Diseases. By Albert A. Gray, M.D. Price 12*s.* 6*d.* net.

BALE (JOHN), SONS, AND DANIELSSON, LIMITED, London.

The Compendium of Medicine and Pharmacy. By C. J. S. Thompson. Third edition. Price 5*s.* net.

BLACK, ADAM AND CHARLES, London.

Advice to Consumptives: Home Treatment, After-care, and Prevention. By Noel Dean Bardswell, M.D. Foreword, by C. Theodore Williams, M.V.O., M.D., F.R.C.P. Price 1*s.* 6*d.* net.

CASSELL AND COMPANY, LIMITED, London, Paris, New York, Toronto and Melbourne.

Difficult Labour: A Guide to its Management. For Students and Practitioners. By G. Ernest Herman, M.B. Lond., F.R.C.P., F.R.C.S. New and enlarged edition, with added Chapters on Retroversion of the Gravid Uterus and Puerperal Eclampsia. Price 12*s.* 6*d.*

First Principles in the Art of Physical Development. By W. A. Chapple, M.P., M.D., Ch.B., M.R.C.S., D.P.H. Price 1*s.*

A Manual of Chemistry. Adapted to the Requirements of Students of Medicine. By Arthur P. Luff, M.D., B.Sc. Lond., F.R.C.P., F.I.C., and Hugh C. H. Candy, B.A., B.Sc. Lond., F.I.C. New and enlarged edition. Price 7*s.* 6*d.* net.

COLLINGRIDGE, W. H. AND L., London.
Window and Indoor Gardening. By T. W. Sanders, F.L.S., F.R.H.S. Price 2s. 6d. net.

CONSTABLE AND CO., LIMITED, London.
Nightshade. (A Novel.) By Paul Gwynne. Price 6s.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
Oxford Medical Publications. Practical Nursing. For Male Nurses in the R.A.M.C. and other Forces. By Major E. M. Hassard, R.A.M.C., and A. R. Hassard. Price 3s. 6d. net.

GLAISHER, HENRY J., London.
A Prescriber's Companion. By Thomas D. Savill, M.D. Lond. Fourth edition. Revised by the Author, assisted by Charles F. Harford, M.A., M.D. Cantab. Price 1s. net.

HIRSCHWALD, AUGUST, Berlin.
Bibliothek v. Coler-v. Schjerning. Band XXIX. Behelfsvorrichtungen beim Sanitätsdienste im Felde. (Vorwiegend nach Erfahrungen aus dem Hottentottenfeldzuge, 1904-07.) Von Dr. Westphal. Price M.5.
Band XXX. Nervensystem und Insolation. Entwurf einer klinischen Pathologie der kalorischen Erkrankungen. Von Dr. F. A. Steinhausen. Price M.4.

HOEBER, PAUL B., 69, East 59th Street, New York. (LEWIS, H. K., London.)
Physiology and Pathology of the Semicircular Canals. Being an Excerpt of the Clinical Studies of Dr. Robert Barany, with Notes and Addenda gathered from the Vienna Clinics. By Adolph E. Ibershoff, M.D., and a Foreword by Royal S. Copeland, A.M., M.D. Price $1 net.

HUTCHINSON AND CO., London.
The Heart of Marylebone. By Handasyde. Price 6s.

KIMPTON, HENRY, London. (STENHOUSE, ALEXANDER, Glasgow.)
The Diseases of Infancy and Childhood. By Henry Koplik, M.D. Third edition, revised and enlarged. Price 25s. net.

LEA AND FEBIGER, Philadelphia and New York.
The Medical Complications, Accidents, and Sequels of Typhoid Fever and the Other Exanthemata. By Hobart Amory Hare, M.D., B.Sc., and E. J. G. Beardsley, M.D., L.R.C.P. Lond. With a Special Chapter on the Mental Disturbances following Typhoid Fever. By F. X. Dercum, M.D. Price, cloth, $3.25 net.

LONGMANS AND CO., London; B. QUARITCH, London; DULAU AND CO., London; and BRITISH MUSEUM (NATURAL HISTORY), London.
A Monograph of the Culicidæ or Mosquitoes. Mainly Compiled from Collections received at the British Museum. By Fred V. Theobald, M.A. Volume V. Price 25s.

MILLS AND BOON, LIMITED, London.
The Nursery Nurses' Companion. Compiled by Honnor Morten. Price 1s. net.

PITMAN, SIR ISAAC, AND SONS, LIMITED, London.
Hypnotism and Suggestion in Daily Life, Education, and Medical Practice. By Bernard Hollander, M.D. Price 6s. net.

REBMAN, LIMITED, London.
Meteorology, Practical and Applied. By Sir John Moore, M.A., M.D., D.P.H. Dub., D.Sc. Oxon. (*Honoris Causâ*), F.R.C.P.I. Second, revised and enlarged, edition. Price 10s. 6d. net.

REY, A., 4, Rue Gentil, Lyon, France.
Livre Jubilaire. Mémoires Originaux Dédiés à M. J. Teissier, Professeur de Clinique Médicale à l'Université de Lyon à l'Occasion du XXVe Anniversaire de son Professorat, 1884-1909. Price not stated.

RIDER, WILLIAM, AND SON, LIMITED, London.
How to Keep Fit. An Unconventional Manual. By A. T. Schofield, M.D., M.R.C.S. Price 1s. net.

SAUNDERS (W. B.) COMPANY, Philadelphia and London.
Surgical After-treatment. A Manual of the Conduct of Surgical Convalescence. By L. R. G. Crandon, A.M., M.D. Price 25s. net.
Saunders' Question-Compends. No. 1. Essentials of Physiology. Prepared especially for Students of Medicine. By Sidney P. Budgett, M.D. Third edition, thoroughly revised. By Haven Emerson, A.M., M.D. Price 4s. net.
Saunders' Question-Compends. No. 2. Essentials of Diseases of the Skin, including the Syphilodermata. Arranged in the Form of Questions and Answers. Prepared especially for Students of Medicine. By Henry W. Stelwagon, M.D., Ph.D. Seventh edition, thoroughly revised. Price 4s. net.

SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.
The Lion's Whelp (A Novel). By G. M. Irvine, B.A., M.B. With introduction by John Campbell, M.A., M.D., F.R.C.S. Eng., LL.D. (Hon. Causâ). Price not stated.

SPRINGER, JULIUS, Berlin.
Die Röntgentherapie in der Dermatologie. Von Dr. Frank Schultz. Price, paper, M.6; bound, M.7.

UNIVERSITY OF LONDON PRESS AND HODDER AND STOUGHTON, London.
Physiology, the Servant of Medicine. (Chloroform in the Laboratory and in the Hospital.) Being the Hitchcock Lectures for 1909, delivered at the University of California, Berkeley, Cal. By Augustus D. Waller, M.D., LL.D., F.R.S. Price 5s.

VINCENT MUSIC COMPANY, LIMITED, 60, Berners-street, London, W. (DONLAN, THOMAS J., Colonial Building, Boston, Mass., U.S.A.)
Science and Singing. By Ernest G. White. Price 4s. 6d. net., or $1.25 net.

WILEY, JOHN AND SONS, New York. (CHAPMAN AND HALL, LIMITED, London.)
Introduction to the Analysis of Drugs and Medicines. An Elementary Handbook for the Beginner. By Burt E. Nelson. First edition. First thousand. Price, cloth $3.00 net, or 12s. 6d. net.

WRIGHT, JOHN, AND SONS, LIMITED, Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)
Golden Rules of Obstetric Practice. By W. E. Fothergill, M.A., B.Sc., M.D. Sixth edition. Price 1s.

YELLON, WILLIAMS, AND CO., LIMITED, The Celtic Press, 43, Chancery-lane, London, W.C.
Speech-reading for the Deaf—Not Dumb. By A. J. Story, Headmaster of the North Staffordshire Blind and Deaf School, Stoke-on-Trent. Price 5s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ALEXANDER, ARCHIBALD, M.B., Ch.B. Edin., has been appointed Junior House Surgeon at the Stockport Infirmary.

BOVEY, THOMAS WILLIAM WIDGER, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Bampton (Devon) Urban District Council.

CAMPBELL, A. J., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Officer for Ross, Herefordshire.

GRAY, M. D., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Drumlish District of the county of Longford.

HODGSON, ALGEON SUGDEN, L.D.S. R.C.S. Eng., has been appointed Honorary Dental Surgeon to the Royal Halifax Infirmary.

MACEWEN, H. A., M.B., Ch.B. Glasg., D.P.H., has been appointed Medical Officer of Health by the Cupar (Fife) County Council.

MARR, HAMILTON CLELLAND, M.D., M.S. Glasg., has been appointed Medical Commissioner in Lunacy for Scotland.

NICHOLSON, OLIPHANT, M.D. Aberd., F.R.C.P. Edin., has been appointed Examiner in Midwifery in the University of Aberdeen.

O'HALLORAN, J. A., M.B., B.S. R.U.I., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Killashee District of the county of Longford.

ROBERTS, E. E., M.D. Liverp., M.B., B.S. Manch., has been appointed to the New Professorship of Pathology and Bacteriology in the University of South Wales.

STOCK, WILLIAM STUART VERNON, M.B., B.S. Lond., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Honorary Demonstrator in Obstetrics at the University of Bristol.

TATTERSALL, N., M.B., Ch.B. Vict., M.B., B.S. Lond., has been appointed House Physician to the Victoria Hospital for Children, Chelsea, S.W.

WHARTON, JOHN, M.D. Cantab., has been appointed Visiting Ophthalmic Surgeon to the Choriton Union Hospitals, Manchester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNSLEY, BECKETT HOSPITAL.—Honorary Surgeon.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Surgeon. Salary at rate of £50 per annum, with board, lodging, and washing.

BLACKBURN, COUNTY FEVER HOSPITAL.—Resident Medical Officer and Assistant Medical Officer of Health, unmarried. Salary £100 per annum, with board and lodging.

BRISTOL ROYAL INFIRMARY.—Honorary Medical Registrar.

CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with board, apartments, and laundry.

CUMBERLAND COUNTY COUNCIL.—Junior Assistant to Medical Officer of Health. Salary £225 per annum.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

DORCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £140 per annum, with board, &c.

DOUGLAS, NOBLE'S ISLE OF MAN HOSPITAL AND DISPENSARY.—Resident House Surgeon, unmarried. Salary £90 per annum, with board and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £55 per annum, with board and washing.

ENNISKILLEN, FERMANAGH COUNTY HOSPITAL.—House Surgeon. Salary £72 per annum.

EPSOM, LONDON COUNTY ASYLUM, Horton.—Junior Assistant Medical Officer, unmarried. Salary £160 a year, with board, apartments, and washing.

GLOUCESTER, GLOUCESTERSHIRE EDUCATION COMMITTEE.—School Medical Inspector. Salary £250 per annum.

GREAT NORTHERN CENTRAL HOSPITAL, Holloway, N.—Anæsthetist. Salary 10 guineas per annum.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and laundry.

HARTLEPOOLS HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with rooms, board, and washing.

HÔPITAL FRANÇAIS, 172, Shaftesbury-avenue, W.C.—Second Resident Medical Officer, unmarried. Salary £50 per annum, with board and laundry.

HULL, ROYAL INFIRMARY.—Two Casualty House Surgeons. Salary £30 per annum, with board and lodging.

HUNTINGDON COUNTY HOSPITAL.—House Surgeon. Salary at rate of £80 per annum, with board, &c.

KIRKCALDY, BURGH OF.—Medical Officer of Health. Salary £300 per annum.

LABORATORIES OF PATHOLOGY AND PUBLIC HEALTH.—Assistant Clinical Pathologist.

LINCOLN GENERAL DISPENSARY.—Resident Junior Medical Officer, unmarried. Salary £175 per annum, with apartments, &c.

MANCHESTER CHILDREN'S HOSPITAL, Gartside-street, Manchester.—Assistant Medical Officer for six months. Salary £100 per annum.

METROPOLITAN ASYLUMS BOARD, London.—Assistant Bacteriologist. Salary £300 per annum.

MILE END OLD TOWN, HAMLET OF.—Senior Assistant Medical Officer. Salary £150 per annum, with board, lodging, and washing. Also Junior Assistant Medical Officer. Salary £120 per annum, with board, lodging, and washing.

NEWCASTLE-UPON-TYNE UNION WORKHOUSE.—Assistant Medical Officer (female), unmarried. Salary at rate of £100 per annum, with apartments, rations, and washing.

OLDHAM INFIRMARY.—Three House Surgeons for six months. Salaries £120, £100, and £80 per annum, with residence, board, and laundry.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—Junior House Surgeon, unmarried, for six months. Salary at rate of £80 per annum, with board, &c.

PARISH OF ST. GILES INFIRMARY, Brunswick-square, Camberwell.—Assistant Medical Officer. Salary £120 per annum, with apartments, board, and washing.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £130 per annum, with board, lodging, and washing.

ROYAL DENTAL HOSPITAL OF LONDON, Leicester-square.—Joint Morning House Anæsthetist. Salary £25 per annum.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

SALFORD UNION INFIRMARY, Hope, Pendleton.—Medical Superintendent. Salary £350 per annum.

SALISBURY, FISHERTON HOUSE ASYLUM.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging, and washing.

SALISBURY GENERAL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with apartments, board, and lodging. Also Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and lodging.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Surgeon and Assistant House Physician, unmarried. Salary £50 each per annum, with board, lodging, and washing.

SUNDERLAND INFIRMARY.—Two House Surgeons. Salary £80 per annum, with board, residence, and washing.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board and apartments.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board, lodging, &c.

WARRINGTON INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary £120 per annum, with apartments, board, and laundry.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £100 per annum, with board, residence, and washing.

The Secretary of State, Home Office, London, S.W., gives notice of a vacancy as Medical Referee under the Workmen's Compensation Act, 1906, for the County Court Circuit No. 21, attached more particularly to the Birmingham County Court.

Births, Marriages, and Deaths.

BIRTHS.

FIELDING.—On July 8th, at Bethel-street, Norwich, to Dr. and Mrs. S. J. Fielding, a son.

FRENCH.—On July 13th, at Porchester-gardens, Hyde Park, W., the wife of J. Gay French, M.S. Lond., F.R.C.S. Eng., of a daughter.

NUTTALL.—On July 12th, at Hollins-grove, Darwen, to Dr. and Mrs. J. S. W. Nuttall, a daughter.

TOOTH.—On July 16th, at Harley-street, London, W., the wife of Howard H. Tooth, M.D., C.M.G., of a daughter.

WINTER.—On July 16th, at John of Gaunt's House, Lincoln, the wife of Edward Stuart Winter, M.R.C.S. Eng., L.R.C.P. Lond., of a daughter.

MARRIAGES.

CHOLMELEY—TURNER.—At St. Luke's, Weaste, on July 19th, by the Rev. J. Butler Cholmeley, Vicar of St. Mark's, Hull (brother of the bridegroom), assisted by the Rev. H. D. Lockett, Vicar of Weaste, William Frederick Cholmeley, F.R.C.S., son of the late Rev. John Cholmeley, Rector of Carlton Rode, Norfolk, to Caroline, daughter of the late William Henry Turner, of Oswestry.

LEEMING—READ.—On July 14th, at Trinity-road Baptist Church, Upper Tooting, A. Norman Leeming, M.B., B.S., to Mabel Otway, youngest daughter of J. E. Read, "Beverley," Brodrick-road, Upper Tooting, S.W.

DEATHS.

GRANT.—On July 14th, at Ruthven, Ballindalloch, Banffshire, Robert Grant, C.B., M.B., M.A., aged 68 years.

STEELL.—On July 17th, at Anson-road, Victoria Park, Manchester, Agnes Dunlop, the dearly-loved wife of Graham Steell, M.D., F.R.C.P.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

FIRE TESTS WITH FLANNELETTE AND OTHER TEXTILES.

THE British Fire Prevention Committee, whose offices are at 1, Waterloo-place, Pall Mall, London, S.W., has issued a very interesting and valuable report dealing with the results of a practical inquiry on the inflammability of flannelette and other textile materials. No less than 450 fire-tests were made, and many of the results are strikingly seen in a series of photographs excellently reproduced in the report. We are glad to find that the committee's recommendations are in complete accordance with the views which we have expressed in these columns from time to time upon this important question. As to possible legislation it is suggested:—

"1. That where material cannot be classified as 'non-flaming' under the standard test it shall not be permissible to sell such material unless there be plainly woven or printed into the selvedge, every yard apart, the words BURNS RAPIDLY.

2. That on any flannelette or union, sold as being non-inflammable, i.e., as complying with the standard test, there shall be woven or printed into the selvedge, every yard apart, the words NON-FLAMING.

3. That where ready-made articles of clothing of flannelette or union are sold the respective descriptions, BURNS RAPIDLY or NON-FLAMING, shall be twice woven or printed into the principal band of the article of clothing or firmly stitched in two places on an inner hem of the garment.

4. That any wholesale or retail firm or hawker selling flannelette or union in piece or in ready-made garments not properly marked, or selling as 'non-flaming' a material not complying with the tests, shall make themselves amenable to prosecution under an enactment having some such simple and rapid procedure as is adopted under the Foods and Drugs Act, the central authority reserving to itself the right to prosecute if the local authority does not do so.

4 A. No flannelette made abroad shall be passed by the Customs, unless it is Non-flaming, and the name of the maker or wholesale firm woven in the selvedge.

5. That parents and guardians be made specifically responsible (say, by an Amendment to the Children's Act and with the same penalties) for death or injury from fire to children under the age of twelve wearing union or flannelette material that is marked 'burns rapidly.'

6. That local authorities shall, by public warning, make known the danger of the use of untreated flannelette as a clothing material."

WHITE OF EGG AS A DRESSING.

To the Editor of THE LANCET.

SIR,—While reading Dr. F. C. Eve's article in THE LANCET of June 25th on "The Utility of the Antilytic Power of Horse Serum," it occurred to me that the white of egg, a popular application in this country for chronic ulcers, might have similar properties. Judging from the little I have seen of its use it is certainly of some value as a dressing, but possibly its virtues are chiefly of a negative kind, the albumin being protective and non-irritative, thus allowing the natural recuperative powers to come into play. In cases where the question of cost precludes one from using horse serum I think the egg albumin well worth a trial. It is perhaps unnecessary to say the eggs should be perfectly fresh. I am, Sir, yours faithfully,

Douglas, Isle of Man, July 12th, 1910. P. W. HAMPTON.

DEATH FROM VERONAL POISONING.

AN inquest was held recently at Devonport relative to the death of an assistant canteen manager of H.M.S. *Impregnable*, aged 24 years. Medical evidence showed that death was due to veronal poisoning, and a verdict to the effect that "Death was caused by misadventure in taking an overdose of veronal tablokls" was returned. The coroner remarked that there had been other deaths caused by veronal, but the poison was not scheduled, and a chemist could sell it to anyone who wanted it, a position which he thought that other authorities should take heed of.

RADIO- AND ELECTRO-THERAPEUTICS.

WE have received from Messrs. Siemens Brothers and Co., Limited, of Caxton House, Westminster, London, S.W., three new publications dealing respectively with the application of radio-active materials in disease, the choice of effective X ray apparatus, and a number of electro-medical appliances which now find a valuable place in treatment. All three publications are well worth reading, as, apart from the excellence of the illustrations and the fact, of course, that Messrs. Siemens Brothers are the vendors of the apparatus described, a very good idea is obtained of the advances which have been made in these branches of medical science, as well as in the adaptation of the various appliances for medical purposes.

THE ACCURATE DETERMINATION OF COLOUR SENSITIVENESS AND COLOUR BLINDNESS.

Messrs. A. Hilger, Limited, astronomical and optical instrument makers, of 75A, Camden-road, have brought to our attention an instrument made by them for the accurate determination of colour sensitiveness and colour blindness. The makers believe that the instrument is the only one which can be described as an accurate "measuring instrument" in this respect, and although its principle is closely allied to the theories of colour perception elaborated by the inventor, Dr. F. W. Edridge-Green, it does not depend upon his theory for its practical utility and exactness. The colour perception spectrometer is so arranged as to make it possible to expose to view in the eye-piece the portion of a spectrum between any two desired wave-lengths. We had an opportunity of examining the apparatus on the occasion of one of the conversaziones of the Royal Society, when we were impressed with the ingenuity of its design, and as a measuring apparatus for colour perception it may justly be claimed to be scientific.

"DR." CRIPPEN.

IT appears that the police now want Crippen very badly. They recently had him under their hands, but did not appear to be anxious to keep him. We observe that many of the daily papers consider that the police acted with all possible skill and foresight. They may be right here, but they are not right in persistently giving a medical title to a quack. The *Times*, we are glad to see, puts qualifying inverted commas to his title.

STONE BLIND.

To the Editor of THE LANCET.

SIR,—"Stone blind" is a popular term for complete and hopeless loss of vision. I have been unable to trace its origin, but imagine that it arose in the days when glaucoma was not understood as a pathological process. It was then clinically known that an eye of "stony hardness" had no chance of sight. Platner in 1745 speaks of the eye—"oculus qui caligat ..... durusque fit." If there is another explanation I should much like to hear it.

I am, Sir, yours faithfully,

July 20th, 1910. WM. ETTLES.

DIPHTHERIA AND CATS.

AT the last meeting of the Buckfastleigh (Devon) urban district council, Mr. H. Ubsdell, the medical officer of health, reported that three cases of diphtheria which occurred in one family were caused by infection from a cat.

THE WOMEN'S IMPERIAL HEALTH ASSOCIATION OF GREAT BRITAIN.

To the Editor of THE LANCET.

SIR,—The title of the Women's National Health Association of Great Britain has been altered to the Women's Imperial Health Association of Great Britain. The President is Muriel, Viscountess Helmsley, and all information regarding the work of the association can be obtained at the office, 3, Princes-street, Hanover-square, W.

I am, Sir, yours faithfully,

R. V. GILL, Secretary.

Princes-street, Hanover-square, W., July 19th, 1910.

THE CARE OF THE BABY.

THE little pamphlet called "Baby," written by Miss Edith L. Maynard, and published at the price of 1*d.* by the Sanitary Publishing Company, Fetter-lane, London, is now in its fifth edition. The subtitle of the pamphlet is "Useful Hints for Busy Mothers," and it contains just that kind of information which is likely to prove useful to the young mother whose knowledge concerning one of the most important of her duties may be lacking. Dr. John Robertson, medical officer of health of Birmingham, supplies an introductory note.

E. E.—If the inquiry means that the general labourer desires to obtain compensation from his employer under the Workmen's Compensation Act, and if the loss of his eye is from "an injury by accident arising out of and in the course of" his employment, he should be able to recover compensation based on his loss of earnings. For partial incapacity he is entitled to not more than 50 per cent. of his average weekly earnings during previous 12 months—*50 per cent. and not exceeding £1*, and in no case exceeding the difference between his average earnings before the accident and the amount he is earning or is able to earn in some suitable employment after the accident. The "average value of an eye" cannot be stated in these circumstances.

T. H.—We have made a few inquiries with reference to our correspondent's communication, and we cannot find that the pathological phenomena possess association with the meal. With regard to the chemical constituents of rhubarb, analysis gives the following percentages: water, 92·67; mineral matter, 0·94; protein, 0·83; fibre, 1·11; sugar, 3·01; fat, 1·19; and oxalic acid, 0·25.

Elkona.—We believe it is the custom to supply the medical attendant with such a print. Sometimes the patient wishes for and obtains one, but there might be obvious difficulties in complying with every request made by a patient. We do not think that there is any custom in the matter that can be called "generally recognised."

L.R.C.P. Lond. will find in the columns of THE LANCET for the last few years references to abattoirs in all parts of the world. Our Commissioner has reported fully upon the German system.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

CONGRESSES are now getting so numerous that we have thought that a diary like the one printed below might be of service to our readers. With that idea we shall repeat it occasionally, with any necessary additions or subtractions. The following Congresses, Conferences, and Exhibitions are announced for 1910:—

July 26th–29th (London).—British Medical Association.
" 26th–29th (Cambridge).—Pharmaceutical Congress.
August 1st–7th (Brussels and Liège).—Congress of French-speaking Psychiatrists and Neurologists.
" 2nd–7th (Paris).—Third International Congress on School Hygiene.
" 4th–10th (Brussels).—International Congress of Legal Medicine.
21st–26th (Brussels).—International Home Education Congress.
August 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal Sanitary Institute.
" 10th–14th (Brussels).—Second International Congress on Occupational Diseases.
" 13th–15th (Brussels).—International Congress on Radiology and Electricity.
" 22nd–27th (Toulouse).—Sixth French Congress of Gynæcology, Obstetrics, and Pædiatrics.
" 22nd–28th (St. Petersburg).—Fifth International Congress of Obstetrics and Gynæcology.
" 27th–30th (Vienna).—Eighth International Physiological Congress.
Oct. 1st–5th (Paris).—Second International Conference for the Study of Cancer.
" 3rd–7th (London).—Sixth London Medical Exhibition.
" 3rd–7th (Berlin).—International Congress on the Care of the Insane.
" 4th–8th (Brussels).—Second International Congress of Alimentary Hygiene.
" 13th–15th (Paris).—Eleventh French Congress of Medicine.
" 16th–22nd (Barcelona).—First International Spanish Congress of Tuberculosis.

In 1911:—
May–October (Dresden).—International Hygiene Exhibition.
August or September (Berlin).—Third International Laryngo-Rhinological Congress.
September (Brussels).—Exhibition of Fractures.
October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—
September (Washington, D.C.).—Fifteenth International Congress of Hygiene and Demography.

In 1913 the only fixture so far is in London, where the Seventeenth International Congress of Medicine will take place.

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.
TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women.
THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.
FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.
SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. Howell Evans), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).
TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient (Dr. A. J. Whiting).
WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. H. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel).
FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.
MONDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture V.). (Post-graduate Course.)
TUESDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture V.). (Post-graduate Course).
WEDNESDAY.—5.15 P.M., Dr. A. Voelcker: Diseases of the Chest in Children, illustrated by cases, specimens, skiagrams, and drawings. (Lecture VI.). (Post-Graduate Course.)
THURSDAY.—5 P.M., Mr. H. G. T. Fairbank: Deformities, illustrated by cases, specimens, skiagrams, and sketches. (Lecture VI.). (Post-graduate Course).

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (27th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Opthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (28th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (29th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (30th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local event having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1910 are now ready. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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SOLE AGENTS FOR AMERICA—Messrs. WILLIAM WOOD AND CO., 51, Fifth Avenue, New York, U.S.A.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 20th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
July 14	30·14	E.	...	116	71	54	55	56	Overcast
,, 15	29·95	E.	...	104	67	56	55	58	Overcast
,, 16	29·90	N.E.	...	112	68	55	54	56	Overcast
,, 17	29·87	E.	...	93	66	56	56	57	Overcast
,, 18	29·84	N.E.	0·12	84	59	56	56	58	Overcast
,, 19	30·02	N.E.	0·29	109	70	50	52	56	Fine
,, 20	29·92	S.W.	...	94	65	56	58	60	Overcast

Communications, Letters, &c., have been received from—

A.—Messrs. Allen and Hanburys, Lond.; Mr. E. Arnold, Lond.; Mr. A. J. Arch, Coventry; Mr. T. R. Atkins, Langla, India; Armstrong College, Newcastle-on-Tyne, Secretary of; Dr. T. L. Ashforth, Doncaster.

B.—Messrs. Blundell and Rigby, Lond.; M. O. Berthier, Paris; Mr. W. G. Burcombe, Lincoln; Mr. J. Bevan, Lond.; Mr. F. G. Bennett, Chapel-en-le-Frith; Messrs. Burroughs, Wellcome, and Co., Lond.; British Medical Association, Lond.; Messrs. C. Barker and Sons, Lond.; Bombay Presidency, Secretary to Judicial Department of; Dr. J. Burnet, Edinburgh; Dr. W. Boyd, Rowditch; British Fire Prevention Committee, Lond., Hon. Secretary of; Beckett Hospital, Barnsley, Hon. Secretary of; Mr. E. G. Butler, Lond.; Dr. P. Boobbyer, Nottingham; Dr. R. A. Barr, Nashville, U.S.A.; *Berrow's Journal*, Worcester, Manager of; Dr. D. Buxton, Lond.; Dr. A. Barwell, Lond.

C.—Mr. F. W. Clarke, Chorlton-cum-Hardy; Clapham Maternity Hospital, Lond., Secretary of; Mr. F. W. Coope, Bolton; Dr. L. P. Colat, Battambang; Mr. F. Coleman, Lond.; Messrs. J. and A. Churchill, Lond.; Mr. J. P. Cullen, Mutley; Messrs. T. Cook and Son, Lond.; Chesterfield and North Derbyshire Hospital, Secretary of; Mr. W. Cass, Hull; Messrs. D. Cooper and Co., Huntingdon; Central London Throat and Ear Hospital.

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